144/430/440MHz FM DUAL BANDER

TM-G707A/E

SERVICE MANUAL

KENWOOD

Microphone assy
(T91-0586-05):K

Metallic cabinet (Upper)
(A01-2122-13)

Konb (SQL)
(K29-5223-03)

Cover (DIN 6P)
(F07-1428-23)

Sub panel
(A22-0800-01)

Konb (MAIN)
(K29-5221-03)

Panel assy
(A62-0571-13)

Konb (VOL)
(K29-5222-03)

Button knob (MAIN PUSH)
(K27-3175-03)

Photo is K Type

CONTENTS

TM-G707A/E

CIRCUIT DESCRIPTION

Outline

This device is a dual-band 144/430MHz FM car transceiver planned and designed for amateur radio communications and has the following features.

1. The display backlighting uses ultra-high brightness yellow LEDs. The display is a 13-segment positive type.
2. The main unit is 40x140 mm. The detachable operation panel is 51.5x105 mm.
3. 180 channels in memory.
4. The chassis is diecast aluminum with the heat radiation fins formed into one piece with the chassis.
5. Built-in CTCSS functions with 38 different selectable tones.
6. Data terminal having 1200 bps/9600 bps packet communication and computer interface.
7. Audio announce mode that announces the display frequency, name of the key pressed, etc. (when VS-3 option installed)

List of Destinations

Model		Guarantee frequency range (MHz)		Output power (W)	
		144	430	144	430
TM-G707A	K	144~148 [1]	438~450	50 [2]	35 [2]
	M2		430~440		
	M4				
TM-G707E	E	144~146	430~440	50	35
	E3				

[1] Taiwan : 144 ~ 146 MHz
[2] Taiwan : 25 W (both bands)

Accessories

Parts name	Parts No.	Q'ty	Destination
Warranty card	–	1	K,E,E3
Instruction manual	–	1	all
DC cord	E30-2111-15	1	all
Fuse (15A)	F51-0017-05	1	all
Microphone	T91-0396-05	1	M2,M4,E,E3
Microphone (DTMF)	T91-0586-05	1	K
Mobile bracket	J29-0632-13	1	all
Screw set	N99-0331-05	1	M2,M4,E,E3
Screw set	N99-0382-05	1	K
Microphone hanger	J19-1526-04	1	K

Units for Each Model and Destination

Model		TX-RX UNIT (A/8,B/8,C/8)	LCD ASSY
TM-G707A	K	X57-5570-11	B38-0797-XX
	M2	X57-5570-22	
	M4	X57-5570-24	
TM-G707E	E	X57-5572-71	
	E3		

CIRCUIT DESCRIPTION

Frequency configuration

Since the TM-G707A/E uses the same PLL and IF for both the VHF and UHF band, these sections are used switching bands.

The 144MHz band reception system is mixed down with the 1st local frequency 182.850 MHz to 184.845 MHz (E),182.850 MHz to 186.845 MHz (K, M) to make the 1st intermediate frequency of 38.85 MHz. This frequency is further mixed down with the 2nd local frequency of 38.4 MHz to obtain the 2nd intermediate frequency of 450 kHz.

The 430MHz band reception system is mixed down with the 1st local frequency 391.150 MHz to 401.145 MHz (M, E),399.150 MHz to 406.145 MHz (K) to make the 1st intermediate frequency of 38.85MHz. This is mixed down with the 2nd local frequency of 38.4 MHz to obtain the 2nd intermediate frequency of 450 kHz. Thus, the reception systems form a double conversion system with two intermediate frequencies.

The transmission system uses direct oscillation for both the 144MHz and the 430MHz band and is made up of a PLL circuit formed through direct frequency division. Signals are amplified with straight amps and transmitted.

Fig.1 Frequency configuration

●PLL synthesizer section

The VCO section is in the shielding case and the PLL section is on the TX-RX board. The 12.8MHz reference oscillator (X1) is oscillated with the PLL IC (IC1). The 5kHz and 6.25kHz reference frequencies are obtained by frequency dividing this signal.

5kHz, 10kHz, 15kHz, 20kHz, 6.25kHz, 12.5kHz, 25kHz, and 50kHz step PLL synthesizers are configured through phase comparison with the reference frequencies obtained by frequency dividing HT. The VHF VCO PLL is configured with one PLL IC by using a switch. For VHF, IC2 (analog switch) is

switched to the VHF side and D1 comes on. For UHF, IC2 is switched to the UHF side and D2 comes on. In this way, the two groups are formed. For VHF-band reception, oscillation is 182.85 to 184.845MHz (E), 182.85 to 186.845MHz (K, M) and for transmission, oscillation is 144.00 to 145.995MHz (E), 144.00 to 147.995MHz (K, M).

For UHF band reception, oscillation is 384.95 to 394.945MHz (M, E), 392.95 to 404.945MHz (K) and for transmission, oscillation is 430 to 439.995MHz (M, E), 438.00 to 449.995MHz (K).

Fig.2 PLL synthesizer circuit

TM-G707A/E

CIRCUIT DESCRIPTION

Unlock Detect Circuit

The signal whose phase has been compared from the PLL IC (IC1) is output, goes through the waveform circuit, and is input to the microprocessor. If the level after waveforming is low, the microprocessor ju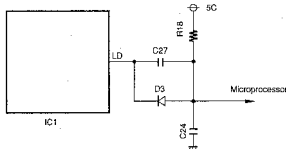dges this to be the unlock signal and does not transmit and does not send the transmission signals to the shift registers. The microprocessor also generates the beep to announce the unlocking. Unlocking is announced in the same manner for reception too.

Fig.3 Unlock detect circuit

Transmit Circuit

●Outline

The transmitter directly oscillates the target frequency with the dedicated 144MHz band and 430MHz band VCO and amplifies to the target power. Frequency modulation is applied directly with a variable-capacity diode.

●Modulation circuit

In the control unit, the audio signals are amplified and limited and passed through a splatter filter, then mixed with subtones from the microprocessor, and directly frequency modulated by a VCO (144MHz band: IC4; 430MHz band: IC5) with a variable-capacity diode.

●Younger stage circuit

The signals from the PLL unit are input to the drive circuit (144MHz band: Q16, Q18, 430MHz band: Q15, Q17, Q19). The drive amps carry out stable amplification over a broad band without regulation and can obtain adequate output to drive the final module.

●APC circuit

The automatic transmission output control circuit (APC) uses a differential amplifier circuit (IC6) to compare and amplify the reference voltage that forms the CPU PWM output and the DC voltage that detects part of the transmission power with diodes (VHF: D20 and D23; UHF: D19 and D21) and for that output controls the DB voltage with a preamp (Q21) and control transistor (Q20) and holds the transmission output constant.

Six sets of PWM data, high-, medium-, and low-power each for VHF and UHF are stored into EEPROM memory (IC511) and for each power condition, the data is extracted from the EEPROM to control the power.

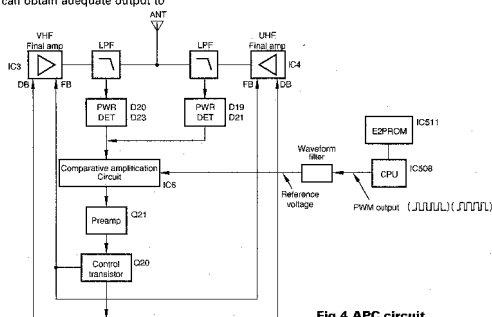The PWM output from the CPU is used as the BPF tuning voltage for reception.

Fig.4 APC circuit

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CIRCUIT DESCRIPTION

Reception Circuit

●144MHz Band

After the 144MHz antenna input signals pass through the final section antenna switching diode, they go through the front section tuning coil for matching and tuning are amplified with the GaAs field effect transistor. The unwanted signal is eliminated with a band pass filter made up of a 2-stage variable-capacity diode tuning and the result goes to the first mixer. The variable-capacity tuning comprises three stages. The tuning voltage is supplied from the microcomputer. For the tuning voltage, the PWM used for APC during transmission is switched to use for tuning for reception. In the first mixer, the signals are mixed with the first local signal from the PLL and converted to the first intermediate frequency signal of 38.85MHz, then the unwanted proximate signal is eliminated in the 2-stage MCF.

The first intermediate frequency signal is amplified and input to the FM IC (IC8). This intermediat efrequency signal is mixed with the second local oscillator frequency of 38.4MHz to make the second intermediate frequency of 450kHz and

after the unwanted proximate signal is eliminated with an FM ceramic filter, The signal is input to IC8 again. Here, second intermediate frequency is amplified and detection are carried out to form the audio signal. From the IF (38.85 MHz) stage onward, the circuits are shared with the 430MHz band and switched for each band.

●430MHz Band

After the 430MHz antenna input signals pass through the final section antenna switching diode, they go through the front section matching coil, are amplified with the GaAs field effect transistor, go through a divider, go through a SAW filter to eliminate the unwanted signal and the result is input to the first mixer. Here, the signals are mixed with the first local signal from the PLL and converted to the first intermediate frequency signal of 38.85MHz, from the IF stage onward, the circuits are shared with the VHF reception circuit.

Item	Rating
Center Frequency	38.85MHz
Pass band width	±7.5kHz or more at 3dB
Attenuation band width	±25kHz or less at 36dB ±45kHz or less at 58dB
Guaranteed attenuation	80dB or more within ±1MHz (Spurious:40dB or more within ±1MHz)
Ripple	1dB or less
Insertion loss	3dB or less
Termination impedance	550Ω ±10%, 2.5pF ±0.5pF

MCF (L71-0481-05)(TX-RX Unit XF1)

Item	Rating
Nominal center frequency	450kHz
6dB band width	±7.5kHz or more (from 450kHz)
50dB band width	±15.0kHz or more (from 450kHz)
Ripple	3dB or less (within 450±5kHz)
Insertion loss	6dB or less (at minimum lost point)
Guaranteed attenuation	35dB or more (within 450±100kHz)
I/O matching terminating impedance	

Ceramic filter (L72-0931-05)(TX-RX Unit CF1)

S Meter Circuit

S meter output voltage from the FM IC (IC8) is connected to the control unit and A/D converted by the CPU to drive the LCD bar meter.

Squelch Circuit

The squelch control angle is read into the panel section microprocessor and converted from analog to 6-bit digital. For adjustment mode, on the main unit side, the threshold level signal is received and the SQ voltage at that time are stored into the microprocessor. The microprocessor calculates the squelch release voltage using this voltage as the reference. This voltage and the panel section squelch control voltage are compared and the squelch switched ON and OFF.

Shift Register Circuits

The TX-RX units have a shift register (IC7) and carry out the control of the right figure.

Pin No.	Name	Function
1	E	GND
2	DTS	Serial data input
3	CK	Clock
4	8R SW	U/V RX Power SW
5	UTX SW	UHF TX Power SW
6	VTX SW	VHF TX Power SW
7	8CU SW	UHF Power SW
8	8CV SW	VHF Power SW
9	14R SW	VHF RX SW
10	VAIP SW	VHF AIP SW
11	UAIP SW	UHF AIP SW
12	80R SW	
13	43R SW	UHF Power SW
14	36R SW	
15	USHIFT	UHF VCO Shift SW
16	5C	VDD

TM-G707A/E

CIRCUIT DESCRIPTION

AF Signal System

After the RD detection signal from the FM IC (IC8) enters the base band (IC506), it is combined with the VO signal from the audio synthesis unit and the beep and DTMF signals from the CPU and goes into the electronic control. The electronic control has two channels, one of which is used for the internal speaker (AO1) and the other of which is used for the speaker mic (AO0). The audio signals whose levels have been adjusted by the electronic control pass through the mute circuit, are amplified by the power amp (IC207), and are output to the built-in speaker and the speaker mic.

(K type has no speaker microphone circuit)

Beep Circuit, Mute Circuit

When a key is pressed, the beep sound is output from Pin 46 of the microcomputer. While the beep sound is output, the RD signal is muted within the base band IC. In the same manner, while VO signals or DTMF signals are output, the RD signal is muted within the base band IC.
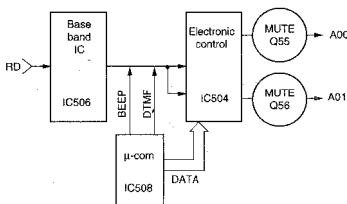
Fig. 5 AF Block Diagram

Mic Amp Circuit (Refer to Fig.6)

The audio signals from the microphone are impedance matched and enter AK2343 (IC506). AK2343 comprises a 2-stage amp, mute circuit, band pass filter circuit, limiter circuit, and splatter filter circuit. It provides the audio signal amplification and preemphasis characteristic. During data transmission from the DATA terminal, the IC507 mute switch is switched off to mute audio signals from the mic. The level for the mic amp output is set with the electronic control (IC504). The modulation circuits are directly connected with the VCO variable-capacity diode for the 144MHz band and the VCO variable-capacity diode for the 430MHz band and apply frequency modulation.
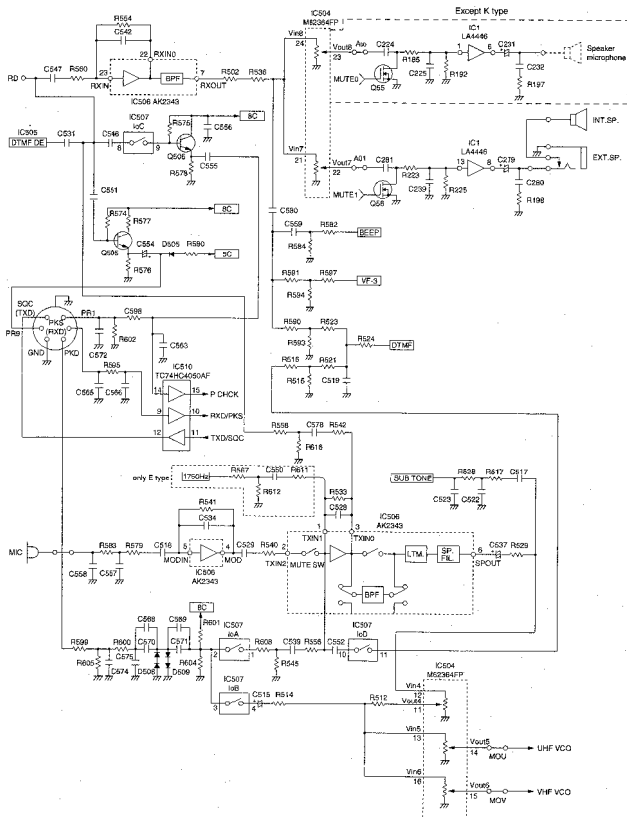
CIRCUIT DESCRIPTION

Fig. 6 Transceiver audio signal processor circuit

TM-G707A/E

CIRCUIT DESCRIPTION

Digital Control Circuit (Refer to Fig.6)

The digital control section controls each function with one microprocessor (IC508) and comprises the subtone signal, DTMF encode and DTMF decode circuit (IC505), the electronic control circuit (IC504), the analog signal select switch (IC507), and the base band circuit (IC506). The reset and backup circuits, mic amp circuit, and microphone key input circuit are also included in the control unit.

Data Communications Between Panel and Control Unit

Figure 7 shows the control unit data communication circuits. SI is the serial data in and SO is the serial data out. There are Buffer amplifiers for protecting the microprocessor board.

Data communication is asynchronous, with a communications speed of 19200 bps. The control unit side microprocessor checks the connection once every 0.5 second and if the connection is NG twice in a row, in other words if the panel section is removed for more than one second, the power is cut off.
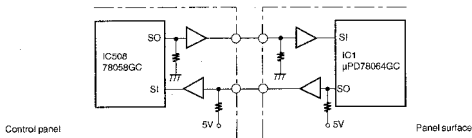

Fig. 7 Circuit for Data Communications Between Panel and Control Unit

Speaker Switching Circuit (Refer to Fig.6)

Each of the AF signals, AO0 and AO1, is input to one of the two independent power amps (IC1: LA4446). Switching between the internal speaker and external speaker is controlled by the electronic control (IC504) and the mute circuit of Q55 and Q56.

Tone Output Circuit (Refer to Fig.6)

The tone signals (38 waves within 67.0 to 250.3Hz) are output from ANO0 of the microprocessor (IC508) analog output port.

●DTMF decode signals

The DTMF signals from a mic with DTMF (M2, E, E3 : optional), go into the DTMF decoder IC (IC505 : LC73881M). When a valid tone pair is detected, STD of the DTMF decoder IC goes high. This is input to the P56 port of the microprocessor (IC508), the serial clock is output from P54 of the microprocessor to the DTMF decoder IC, and the serial data is sent to the P55 port of the microprocessor.
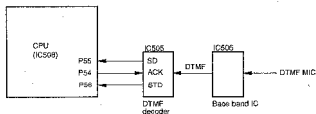
Fig.8 DTMF decode circuit

CIRCUIT DESCRIPTION

Reset and Backup Circuits

When power is supplied to the set, the reset circuit generates a delay in the reset IC (IC503 : PST9130NR) and the delay signal is input to the reset terminal of the main unit microprocessor to carry out a power ON reset. When the power voltage drops, the voltage is detected and the reset signal is generated.

The reset switch circuit resets the main unit microprocessor when the reset switch (S501) is pressed. The microcomputer checks the RST port level after reset is performed. If the switch is released within 1 second (when RST port has set to LOW level) at this time, then operation is the same as VFO reset (VFO+POWER ON). However, if the switch is pressed for longer than 1 second (RST port has set to HIGH level for more than 1 second), then operation is the same as ALL reset (MR+POWER ON). The RST port is normally low. The backup circuit detects any voltage drop in the power supply voltage 13.8V line and sets B CHCK of the microprocessor high, causing the microprocessor to send the backup data to the EEPROM (IC511) and go into STOP mode to reduce power consumption.

Fig.9 Reset backup circuit

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CIRCUIT DESCRIPTION

Microphone Key Input

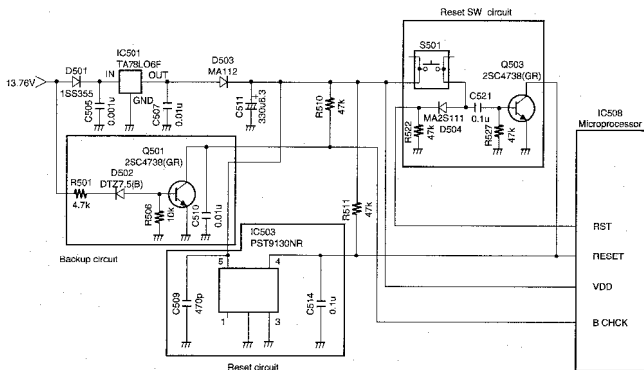The microphone UP/DOWN and function keys are connected to the microprocessor analog input. The voltage when a key is ON operates the corresponding function. Also, the key input interrupt circuit is for switching the power ON/ OFF with the microphone. When the DOWN, MR, and PF keys are pressed, an interrupt is generated and the microprocessor is awoken from stop mode. However, with the TM-G707A/E, the power ON/OFF switch function can be registered to the PF key on the microphone.

Fig.10 Microphone key input circuit

Data Terminal and Peripheral Circuits (Refer to Fig.6)

J501 (data terminal) is the data communications terminal on the front. It handles transmission control, data input/ output, and squelch signals.

There are two data communications modes: 9600bps mode and 1200bps mode. 9600bps mode communications are GMSK and G3RUH packet communications. Unlike with 1200bps AFSK, with this type of high-speed modulation, frequency modulation is carried out after the digital base band signals (rectangular wave) are passed through a band limiting filter. For 9600bps GMSK for example, compared to 4800Hz signals (nearly sine wave signals passed through a filter), these signals have a hissing sound like digital modulation when listened to by ear. Different types of modulation, such as GMSK and G3RUH, are distinguished by the type of band limiting filter.

●Transmission signals

Transmission modulation signals enter from PKD of the data terminals (J501). The path to the modulation depends on whether communications are 1200bps or 9600bps mode.

For 1200bps mode, the transmission modulation signals pass through IoA of the analog switch (IC507) and are input to IC506 TX IN1 (Pin 1). The signals pass through the audio amp within AK2343, are switched by the electronic control, and are input to the VCO.

Pin No.	Pin name	Specification		
1	PKD	bps switching	1200bps	9600bps
		Modulation input	40mVp-p	2Vp-p
		Frequency shift	3±0.5kHz	2.2±0.5kHz
4	PR9	Output level 500mVp-p/10kΩ Always output during reception		
5	PR1	Output level 500mVp-p/10kΩ Not output when squelch off		

DATA terminal input/output level

For 9600bps mode, the transmission modulation signals pass through IoB of IC507, are switched by the electronic control, and are input to the VCO.

The frequency shift depends on the input signal level, so there is an amplitude limiting circuit (D508, 509) to hold the signal below 4 Vp-p to avoid extreme shifts.

Thanks to this circuit, the PKD signal does not go above 4 Vp-p and the frequency shift does not fluctuate extremely.

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CIRCUIT DESCRIPTION

●Reception signals

PR9 is the 9600bps data communications reception output. It outputs the FM detection circuit output (RD signals) through a buffer amp (Q505 : 2SC4738 (GR)). These signals are always output whether the squelch is open or closed.

PR1 is the 1200bps data communications reception output. It outputs the FM detection circuit output (RDT signals) through a buffer amp (Q506 : 2SC4738 (GR)). Output is controlled with the analog switch (IoC of IC507) according to whether squelch is open or closed.

Panel Section (LCD ASSY: B38-0797-35)

The panel section controls serial communications with the main unit control section, the key input circuit, the display circuit, and the dimmer circuit through the microprocessor (IC1).

●Serial communications circuit

A buffer amp is inserted in order to protect the microprocessor ports.

●Key, Volume input circuit

Circuits to operate the panel section keys are connected to each microprocessor port. The PSW key is pulled down and the other keys are pulled up with software within the microprocessor. Rotary encoder operating circuits are connected directly to the microprocessor. The control divides the power supply voltage, reads the A/D port of the microprocessor, and transfers that data to the main unit.

●Display circuit

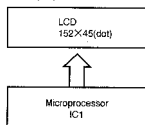The display is a 13-segment positive type. The segments are controlled directly by drivers in the microprocessor.

LCD
152×45(dot)

Microprocessor
IC1

Fig.11 Display circuit

●Squelch signal output circuit (Refer to Fig.6)

The squelch circuits is input to the TNC to prevents conflicts from occurring between simultaneous receive mode and transmit mode traffic during packet communications. (only during 1200bps) The signal is output from Pin 12 of IC510 to the data terminal. The logic is as shown in the Table below.

SQC terminal output	L:SQ CLOSE
(J 501 Pin 6)	H:SQ BUSY

●Dimmer circuit

The dimmer circuit switches the lamp brightness to one of four levels or OFF. (See table) The current flowing to the LEDs is varied by selecting resistors from R36 to R41.

R42 is for adjusting for variation in the brightness of the LED. R42 is adjusted at the factory so that the brightness at the center of the LED is 24 ± 5 cd/m².

Dimmer level	P100	P101	P102	P103
1	H	L	L	L
2	L	H	L	L
3	L	L	H	L
4	L	L	L	H
OFF	L	L	L	L

Port logic

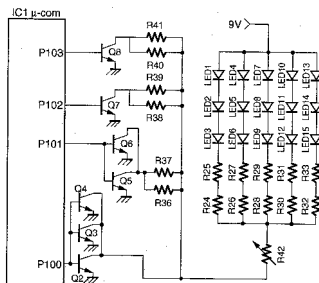**Fig.12 Dimmer circuit**

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TM-G707A/E

ACCESSORY MICROPHONE T91-0586-05 : K type (MC-53DM)

EXTERNAL VIEW

PARTS LIST

Ref. No.	Address	New Parts	Parts No.	Description
			A02-1982-0B	CASE (FRONT)
			A02-1983-0B	CASE (REAR)
			E30-3240-0B	MICROPHONE CORD ASSY (MODULER)
			K29-5101-0B	KNOB (PTT)
			K29-5102-0B	KNOB (UP,DWN)
			K29-5103-0B	KEY TOP(20KEY)
			K29-5104-0B	KNOB (LOCK)
SW3,4	-		S49-1117-05	TACT SWITCH (UP,DWN)
SW2	-		S62-0441-0B	SLIDE SWITCH (LOCK)
SW1	-		S70-0450-0B	TACT SWITCH (PTT)
			T91-0570-0B	MICROPHONE ELEMENT
IC1			LR40872	IC
Q1-3			2SC1623	TRANSISTOR

SPECIFICATIONS

Type	Electret capacitor
Power requirement	8.0 V DC ± 10%
Current drain	35 mA or less
Sensitivity	-72 ± 3 dB (at 1 kHz) (0 dB = 1 V/0.1 pa)
Impedance	900Ω ± 30% (at 1kHz)

ADJUSTMENT

Item	Condition	Test equipment/Measurement	Adjustment	Specifications/Remarks
DTMF output level	3 6 key at same time push	AF VTVM 8P Moduler plug 8(8V)	VR1	2.4mV ± 0.01mV

CONNECTOR END VIEW

Moduler plug (8P)

DWN	UP
NC	8 V DC
MIC	GND
GND (MIC)	STBY (PTT)

SCHEMATIC DIAGRAM

VR1:DTMF output level adjustment
Q1-3:TRANSISTOR   2SC1623
D1:IC10GE
D2,D3:IT10E
IC1:IC
X1:CERAMIC RESONATOR(5.08MHz)   LR40872
D11-D18:LED
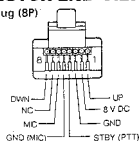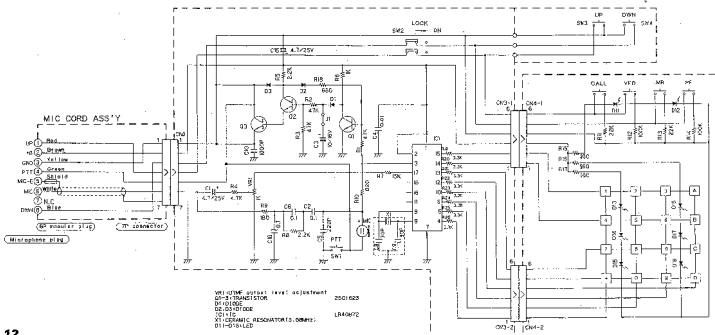
ACCESSORY MICROPHONE T91-0396-05 : E, M type (MC-45)

EXTERNAL VIEW

SCHEMATIC DIAGRAM

PARTS LIST

Ref. No.	Address	New Parts	Parts No.	Description
			A02-0896-08	CASE (FRONT)
			A02-0900-08	CASE (REAR)
			E30-3006-08	CURL CORD ASSY
			G13-0933-08	CUSHION (UP, DWN)
			K29-3165-08	KNOB (PTT)
			K29-3168-18	KNOB (UP)
			K29-3169-18	KNOB (DWN)
			K29-3170-08	KNOB (CALL, VFO, MR, PF)
SW3-6			S59-1409-28	SWITCH ASSY (UP,DWN)
SW7,8			S40-1431-08	TACT SWITCH (CALL, VFO, MR, PF)
SW1			S40-1437-08	TACT SWITCH (UP, DWN)
SW2			S50-1431-08	MICRO SWITCH LOCK
			S31-1422-08	SLIDE SWITCH LOCK
			T91-0383-08	MICROPHONE ELEMENT

SPECIFICATIONS

Type	Electret capacitor
Power requirement	8.0 V DC ± 10%
Current drain	0.6 mA or less
Sensitivity	-71.5 ± 3.5 dB (at 500 Hz) (0 dB = 1 V/0.1 pa)
Impedance	3.1kΩ ± 30% (at 1kHz)

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TM-G707A/E

SEMICONDUCTOR DATA

78P064GCJTUB (LCD DISPLAY ASSY CPU:IC1)

Pin No.	Port name	I/O	Function	Active Level
1	P11/ANI1	AI	AF VOL	-
2	P12/ANI2	AI	Photo transistor	-
3	P13/ANI3	AI	Dimmer reference	-
4	P14/ANI4	I	Dimmer detect terminal	-
5~7	P15~17/ANI5~7	-	Open	-
8	AVDD	-	VDD	-
9	AVREF	-	VDD	-
10, 11	P100, P101	O	Dimmer control1, 2	H
12	VSS	-	GND	-
13, 14	P102, P103	O	Dimmer control3, 4	H
15	P30/TO0	O	5C SW	-
16	P31/TO1	I	[BAND] key	L
17	P32/TO2	I	[PM] key	L
18	P33/TI1	I	[MENU] key	L
19	P34/TI2	I	[DIM] key	L
20	P35/PCL	-	Open	-
21	P36/BUZ	-	Open	-
22	P37	-	Open	-
23~26	COM0~3	O	LCD COM0~LCD COM3	-
27	BIAS	-	BIAS	-
28~30	VLC0~2	-	VLC0~VLC2	-
31	VSS	-	GND	-
32~55	S0~23	O	LCD S0~LCD S23	-
56~71	P97~P80/S24~39	O	LCD S24~LCD S39	-
72	P25/SIO/SB0	I	Main unit microcomputer communication SI	-
73	P26/SO0/SB1	O	Main unit microcomputer communication SO	-
74	P27/SCK0	-	Open	-
75	P70/SI2/RXD	-	Open	-
76	P71/SO2/TXD	-	Open	-
77	P72/SCK/ASCK	-	Open	-
78	IC	-	Open	-
79	X2	-	Clock oscillator connection (4.194304 MHz)	-
80	X1	-	Clock oscillator connection (4.194304 MHz)	-
81	VDD	-	VDD	-
82	XT1/P07	-	Open	-
83	XT2	-	Open	-
84	RESET	-	Reset input	-
85	P00/INTP0/TI00	I	Encoder clock	-
86	P01/INTP1/TI01	I	Main unit microcomputer communications request detect (connected to Pin 72)	-
87	P02/INTP2	I	[PWR] key	L
88	P03/INTP3	I	Encoder data	-
89	P04/INTP4	-	Open	-
90	P05/INTP5	-	Open	-
91	P110	I	[VFO] key	L
92	P111	I	[CALL] key	L
93	P112	I	[MR] key	L
94	P113	I	[MHz] key	L
95	P114	I	[F] key	L
96	P115	I	[TONE] key	L
97	P116	I	[REV] key	L
98	P117	I	[LOW] key	L
99	AVSS	-	GND	-
100	P10/ANI0	AI	Squelch VR	-

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SEMICONDUCTOR DATA

I/O port specification
78058GC-A7X8BT (CONTROL UNIT CPU:IC508)

Pin No.	Port name	I/O	Function	Active Level
1		I	Open (connected to Vdd)	-
2	MIC DW	AI	MIC [DOWN] [MR] [PF] key	H:No operation,4.7V max;SP MIC,4.3V max: [PF] pressed,2.3V max: [MR] pressed,0.6V max: [DOWN] pressed
3	MIC UP	AI	MIC [UP] [CALL] [VFO] key	H:No operation,4.3V max: [VFO] pressed,2.5V max: [CALL] pressed,0.6V max: [UP] pressed
4	AVSS	-	A/D conversion circuit VSS terminal (connected to ground)	-
5	SUB TONE	O	Sub tone signal D/A output terminal	-
6	DTMF	O	DTMF signal D/A output terminal	-
7	AVREF1	-	D/A conversion circuit reference voltage terminal (connected to Vdd)	-
8	RXD/PKS	I	RS-232C RxD terminal	-
9	TXD/5OC	O	RS-232C TxD terminal	-
10	MIC PTT	I	MIC [PTT] key	H:No operation,L:pressed
11	PLL EN	O	PLL enable	L:Enable
12	PLL CK	O	PLL & shift register clock	-
13	PLL DT	O	PLL data	-
14	SFT DT	O	Shift register data	-
15	PLL UL	I	PLL unlock signal	-
16	SI	I	Panel microcomputer communications SI	-
17	SO	O	Panel microcomputer communications SO	-
18	RST	I	Reset switch input	H:pressed,L:No operation
19	MUTE0	O	SPMIC AF MUTE SW	H:MUTE ON
20	MUTE1	O	Internal/external AF mute switch	H:MUTE ON
21		O	Open (connect Vdd)	-
22	AGC	O	AGC	H:AGC ON
23	FAN	O	FAN	H:FAN ON
24	PLL SW	O	PLL SW	H: One moment when PPT On
25	V SHIFT	O	VHF VCO SHIFT SW	-
26	PSW	O	Power Switch	H:PSW ON,L:PSW OFF
27				-
28	AM SW	O	AM SW	H:AM,L:FM
29~30		O	Open (connect Vdd)	-
31	DM CK	O	DTMF decoder clock	-
32	DM DT	O	DTMF decoder data	-
33	VSS	-	Microcomputer ground potential	-
34	DM STD	I	DTMF decoder detect terminal	-
35	5CSW	O	5C switch control	H:5C OFF,L5C ON
36~39	SIM0~3	I	Destination Bit 0~3	-
40	EEP SO	I	EEPROM SO	-
41	EEP CS	O	EEPROM chip select	H:,L select
42	EEP CK	O	EEPROM clock	-
43	EEP SI	O	EEPROM SI	-
44	PWM	O	APC control, BPF control (PWM)	-
45	P CHCK	I	Packet connection check	-
46	BEEP	O	Beep output	-
47	ASW 1200	O	Packet signal input select 1200bps	H:1200bps side input
48	ASW DM	O	DTMF monitor ON/OFF	H:MONI ON
49	ASW 9600	O	Packet signal input select 9600bps	H:9600bps side input
50	1750HZ	O	1750Hz	-
51	ASW SQ	O	PR1 squelch control analog switch	L:PR1 MUTE
52	MIC BUSY	O	Speaker mic Busy LED	H:BUSY LED ON
53	V NAR	O	Audio synthesis IC serial input enable	L:Enable
54	V RST	O	Audio synthesis IC reset	-
55	V CS	O	Audio synthesis chip select	-
56	V DT	O	CTCSS data/audio synthesis IC data	-
57	V/CT CK	O	CTCSS clock/audio synthesis IC clock, connection check	-
58	CT DE	O	CTCSS detected	L:Detected
59	CT EN	O	CTCSS enable	-
60	RESET	I	External reset terminal	-
61	SIM CH	I	CH display jumper	L:Jumper present
62	B CHK	I	Power supply check	L:Voltage drop
63	INT2	I	Panel microcomputer communications request direct (connected to Pin 16)	L :Communications request
64	INT3	I	(Connected to Pin 2)	-
65	VR CK	O	Electronic VR clock	-
66	VR EN	O	Electronic VR enable	-
67	VR DT	O	Electronic VR data	-
68	VDD	-	Positive power supply terminal	-
69	X2	-	System clock (4.194304MHz)	-
70	X1	-	System clock (4.194304MHz)	-
71	VPP	-	Connected to VSS	-
72		-	Open	-
73		-	Open (Connected to VSS)	-
74	AVDD	-	A/D conversion circuit power supply terminal (connected to VDD)	-
75	AVREF0	-	A/D conversion circuit reference voltage terminal (connected to VDD)	-
76	SQ IN	I	Squelch input	-
77	SM IN	I	S meter input	-
78~80		I	Open (Connected to Vdd)	-

TM-G707A/E

SEMICONDUCTOR DATA

BU4066BCF
CONTORL UNIT:IC507

IN/OUT	1		14	V_{DD}
OUT/IN	2	SWA	13	CONT.A
OUT/IN	3	SWD	12	CONT.D
IN/OUT	4	SWB	11	IN/OUT
CONT.B	5		10	OUT/IN
CONT.C	6	SWC	9	OUT/IN
V_{EE}	7		8	IN/OUT

OUT/IN IN/OUT
IN/OUT IN/OUT
IN/OUT OUT/IN
IN/OUT OUT/IN

Eqivalent circuit (1/4)
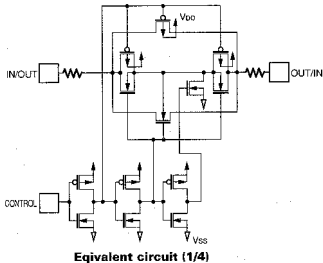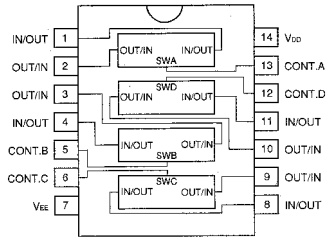
TC74HC4050AF
CONTORL UNIT:IC510

TC74HC4050AF

Vcc	1		16	NC
1Y	2		15	6Y
1A	3		15	6A
2Y	4		13	NC
2A	5		12	5Y
3Y	6		11	5A
3A	7		10	4Y
GND	8		9	4A

Eqivalent circuit (1/6)
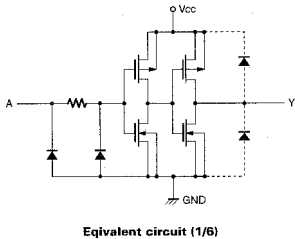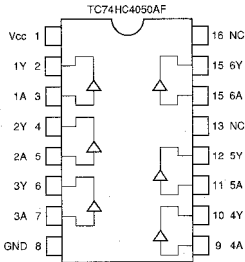
DESCRIPTION OF COMPONETS

TX-RX UNIT (X57-557X-XX)

Ref.No.	Application/Function	Operation/Condition/Compatibility
Q1	Fan switch	
Q2	Buffer amp	12.8MHz
Q3	F in amp	UHF
Q4	F in amp	VHF
Q5, Q6	Charge pump	VHF/UHF common
Q11	VCO power select switch	VHF or UHF On
Q12	VCO 8CL ripple filter	VHF-UHF common
Q13	Common amp	VHF
Q14	Common amp	UHF
Q15	Transmission driver	UHF transmission on
Q16	Transmission driver	VHF transmission on
Q17	Transmission driver	UHF transmission on
Q18	Transmission driver	VHF transmission on
Q19	Transmission driver	UHF transmission on
Q20, Q21	APC control	VHF/UHF common transmission on
Q22	Protection switch	APC temperature protection
Q23, Q24	AVR	For PB
Q25	Protection switch	Excess voltage protection
Q26	Power switch	For 8R
Q27	Power switch	For 8TU
Q28	Power switch	For 8TV
Q29	Power switch	For 8CU
Q30	Power switch	For 8CV
Q31	Power select switch	43R/80R selection
Q32	Power select switch	14R/36R selection
Q33	RF amp	When VHF reception on
Q34	RF amp	
Q35	Doubler	
Q36	RF amp	When UHF reception on
Q37	First mixer	
Q38	First mixer switch	
Q39	RF amp	
Q40	RF amp	When UHF reception on
Q42	Switch for band switch	When UHF reception on
Q43	First mixer switch	When VHF reception on
Q44	First mixer switch	When UHF reception on
Q45	First mixer	When VHF reception on
Q46	First mixer	When UHF reception on
Q47	AGC amp	
Q48	First IF amp	VHF/UHF common transmission on
Q49	Tripler	Second local
Q50	Select switch	
Q51, Q53	Power switch	Power Switch
Q52	Noise amp	Squelch
Q54	AGC amp	
Q55	Mute switch	When speaker mic used
Q56	Mute switch	When internal speaker used
Q60	Mute switch	When internal speaker used
Q61, Q62	Mute switch	When internal speaker used
Q501	Backup switch	Backup on off
Q502	Power switch	For SW5C
Q503	Reset switch	Reset when on
Q504	BUSY LED switch	When speaker mic used
Q505	Buffer amp	9600bps RD
Q506	Buffer amp	1200bps RD

Ref.No.	Application/Function	Operation/Condition/Compatibility
IC1	PLL IC	PLL
IC2	Select switch	Loop filter switching
IC3	Speed up	Loop filter
IC4	VCO	VHF
IC5	VCO	UHF
IC6	Comparator	APC
IC7	Shift register	
IC8	FM wave detection	
IC9	Select switch	
IC10	5V regulator	5C
IC1	Microcomputer	LCD display assy
IC1	Audio amp	(Main)
IC2	8V AVR	8C (Main)
IC3	Power module	VHF (Main)
IC4	Power module	UHF (Main)
IC501	6V regulator	
IC502	5V regulator	5C
IC503	Reset circuit	
IC504	Electronic control	
IC505	DTMF decoder	
IC506	Base band IC	
IC507	Analog switch	
IC508	Microcomputer	
IC509	Comparator	For speaker mic power switch
IC510	Buffer amp	PRI/TXD/RXD/PSI/PSO
IC511	EEPROM	
D1,D2	Select switch	F in switch
D3	Lock detect	Lock detect
D4	Reduce voltage	Charge pump
D5	Quick charge	VCO ripple filter
D6~D9	Select switch	Hetero switch
D10~D12	Voltage stabilizer	Q16, O18, Q19 base bias
D13,D43	Excess power prevention	Q33 protection
D14,D18	Antenna switch	UHF
D15~D17,D42	Antenna switch	VHF
D19,D21	Power detection	UHF
D20,D23	Power detection	VHF
D22	OR circuit	8TV/8TU
D24	Voltage stabilization	Q23 base bias
D25	Excess power prevention	For PB
D26	Excess power prevention	Q36 protection
D27	Band switch	
D28,D29,D31	Band bus tuning	VHF front end
D30	Band switch	
D33	OR circuit	43R/36R
D34,D35	Back current prevention	VCO power switch
D37,D38	Select switch	Hetero switch
D39	Rectifier	Noise amp output
D40,D41	Diverse connection prevention	
D501,D503	Back current prevention	IC501
D502	Voltage stabilization	Q501
D504	Reduce voltage	RST port
D505,D506	Back current prevention	Data terminal
D507	Back current prevention	MIC terminal
D508,D509	Limiter	PKD

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TERMINAL FUNCTION

TX-RX UNIT (X57-557X-XX:A/3)

CN No.	Pin No.	Name	Function
CN1	1	FAN	SB output for fan
	2	E	GND
CN3	1	AF	Audio signal output for speaker mic
	2	AF	Audio signal output for speaker mic
	3	E	GND
	4	E	GND
	5	PWM	APC and VHF-BPF control
	6	UL	Unlock detect output
	7	Not used	
	8	DTP	PLL data input
	9	CK	PLL shift register clock input
	10	EP	PLL enable input
	11	E	GND
	12	Not used	
	13	MOV	VHF modulation input
	14	MOU	UHF modulation input
	15	E	GND
	16	A00	Audio signal input for speaker mic
	17	A01	Audio signal input for internal/external speakers
	18	E	GND
	19	SPE	Ground for speaker mic
	20	SPE	Ground for speaker mic
CN4	1	PB	Panel power supply output
	2	B	13.8V
	3	E	GND
	4	PSW	Power switch control input
	5	PE	Panel ground
	6	8C	Common 8V
	7	MUTE0	Mute control signal input for speaker mic
	8	RD	Demodulation audio output
	9	E	GND
	10	MUTE1	Mute control signal input for internal/external speakers
	11	SQ	Squelch voltage output
	12	SM	S meter voltage output
	13	AGC	AGC control signal input
	14	FAN	Fan control signal input
	15	DTS	Shift register data input
	16	PLL SW	PLL select switch
	17	V.SHIFT	VHF VCO frequency shift switch
	18	U.SHIFT	UHF VCO frequency shift switch
	19	AM SW	AM select switch
	20	E	GND
CN5	1		Internal speaker output
	2		GND

LCD ASSY (B38-0797-35)

CN No.	Pin No.	Name	Function
CN1	1	E	GND
	2	SW	Band select switch signal input
	3	SQ	Squelch volume voltage input
	4	VOL	AF volume voltage input
	5	VDD	Reference voltage output (5V)

CONTROL UNIT (X57-557X-XX:B/3)

| CN No.	Pin No.	Name	Function
CN501	1	PSI	Serial data input
	2	PSO	Serial data output
	3	PE	Panel ground
	4	PB	Panel power supply output
CN502	1	PB	Panel power supply input
	2	B	13.8V
	3	E	GND
	4	PSW	Power switch control output
	5	PE	Panel ground
	6	8C	Common 8V
	7	MUTE0	Mute control signal output for speaker mic
	8	RD	Demodulation audio input
	9	E	GND
	10	MUTE1	Mute control signal output for internal/external speakers
	11	SQ	Squelch voltage input
	12	SM	S meter voltage input
	13	AGC	AGC control signal input
	14	FAN	Fan control signal input
	15	DTS	Shift register data output
	16	PLL SW	PLL select switch
	17	V.SHIFT	VHF VCO frequency shift switch
	18	U.SHIFT	UHF VCO frequency shift switch
	19	AM SW	AM select switch
	20	E	GND
CN503	1	AF	Audio signal input for speaker mic
	2	AF	Audio signal input for speaker mic
	3	E	GND
	4	E	GND
	5	PWM	APC and VHF BPF control
	6	UL	Unlock detect input
	7	Not used	
	8	DTP	PLL data input
	9	CK	PLL shift register clock output
	10	EP	PLL enable output
	11	E	GND
	12	Not used	
	13	MOV	VHF modulation output
	14	MOU	UHF modulation output
	15	E	GND
	16	A00	Audio signal output for speaker mic
	17	A01	Audio signal output for internal/external speakers
	18	E	GND
	19	SPE	Ground for speaker mic
	20	SPE	Ground for speaker mic
CN504	1	VCK	VS-3 clock output
	2	VDT	VS-3 data output
	3	VCS	VS-3 chip select
	4	RST	VS-3 reset output
	5	NAR	VS-3 input enable output
	6	E	GND
	7	5C	Common 5V
	8	V0	Audio input
CN701	1	E	GND
	2	SW	Band select switch signal input
	3	SQ	Squelch volume voltage output
	4	VOL	AF volume voltage output
	5	VDD	Reference voltage input (5V)

PARTS LIST

CAPACITORS

CC 45 TH 1H 220 J
1̲ 2̲ 3̲ 4̲ 5̲ 6̲

1 = Type ... ceramic, electrolytic, etc.
2 = Shape ... round, square, ect.
3 = Temp. coefficient
4 = Voltage rating
5 = Value
6 = Tolerance

CC45   Color*

• **Capacitor value**

010 = 1pF	
100 = 10pF	
101 = 100pF	
102 = 1000pF = 0.001μF	
103 = 0.01μF	

2 2 0 = 22pF
├─ Multiplier
├─ 2nd number
└─ 1st number
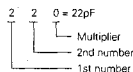
• Temperature coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	−80	−150	−220	−330	−470	−750

2nd Word	G	H	J	K	L
ppm/°C	±30	±60	±120	±250	±500

Example : CC45TH = −470 ± 60ppm/°C

• Tolerance (More than 10pF)

Code	C	D	G	J	k	M	X	Z	P	No code
(%)	±0.25	±0.5	±2	±5	±10	±20	+40 −20	+80 −20	+100 −0	More than 10μF −10 ~ +50 Less than 4.7μF −10 ~ +75

(Less than 10pF)

Code	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

• Voltage rating

2nd word / 1st word	A	B	C	D	E	F	G	H	J	K	V
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	—
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	—
3	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	—

• Chip capacitors

(EX) C C 73 F SL 1 H 0 0 0 J
1̲ 2̲ 3̲ 4̲ 5̲ 6̲ 7̲

(Chip) (CH, RH, UJ, SL)

(EX) C K 73 F F 1 H 0 0 0 Z
1̲ 2̲ 3̲ 4̲ 5̲ 6̲ 7̲

(Chip) (B, F)

* = Refer to the table above
1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance

Dimension (Chip capacitors)

Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
A	4.5 ± 0.5	3.2 ± 0.4	Less than 2.0
B	4.5 ± 0.5	2.0 ± 0.3	Less than 2.0
C	4.5 ± 0.5	1.25 ± 0.2	Less than 1.25
D	3.2 ± 0.4	2.5 ± 0.3	Less than 1.5
E	3.2 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25
G	1.6 ± 0.2	0.8 ± 0.2	Less than 1.0

RESISTORS

• Chip resistor (Carbon)

(EX) R K 73 E B 2 B 0 0 0 J
1̲ 2̲ 3̲ 4̲ 5̲ 6̲ 7̲

(Chip) (B,F)

Dimension

• Carbon resistor (Normal type)

(EX) R D 14 B B 2 C 0 0 0 J
1̲ 2̲ 3̲ 4̲ 5̲ 6̲ 7̲

1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Rating wattage
6 = Value
7 = Tolerance

Dimension (Chip resistor)

Dimension code	L	W	T
E	3.2 ± 0.2	1.6 ± 0.2	1.0
F	2.0 ± 0.3	1.25 ± 0.2	1.0
G	1.6 ± 0.2	0.8 ± 0.2	0.5 ± 0.1

Rating wattage

Code	Wattage	Code	Wattage	Code	Wattage
1J	1/16W	2C	1/6W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

TM-G707A/E

PARTS LIST

• New Parts. ⚠ indicates safety critical components.
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

L: Scandinavia   K: USA   P: Canada
Y: PX (Far East, Hawaii)   T: England   E: Europe
Y: AAFES (Europe)   X: Australia   M: Other Areas

TM-G707A/E

Ref. No.	Address	New parts	Parts No.	Description	Destination
			TM-G707A/E		
1	3B		A01-2121-13	CABINET (LOWER)	
2	1B		A01-2122-13	CABINET (UPPER)	
3	3A		A22-0600-01	SUB PANEL	
4	3A		A82-0571-13	PANEL ASSY	
5	3B	•	A82-0028-01	REAR PANEL	
6	1B	•	B09-0385-05	CAP (PHONE)	
7	3A	•	B10-2518-02	FRONT GLASS	
			B11-1193-08	REFLECTOR (LCD ASSY)	
LED1-15	-		B30-2187-08	LED (LCD ASSY)	
8	3A	•	B36-0797-35	LCD ASSY	
			B38-0798-08	LCD (LCD ASSY)	
9	1B		B82-2456-04	STICKER (M4x8MAX)	
10	-		B46-0337-03	WARRANTY CARD	ACSY	E,E3
10	-	•	B46-0489-10	WARRANTY CARD	ACSY	K
11	-		B62-0664-00	INSTRUCTION MANUAL (ENGLISH) ACSY	K,M2,E
12	-	•	B62-0665-00	INSTRUCTION MANUAL (ITALY) ACSY	E
13	-	•	B62-0666-00	INSTRUCTION MANUAL (GERMANY) ACSY	E,E3
14	-	•	B62-0667-00	INSTRUCTION MANUAL (SPANISH) ACSY	K,E3
15	-	•	B62-0868-00	INSTRUCTION MANUAL (FRENCH) ACSY	E3
16	-	•	B62-0669-00	INSTRUCTION MANUAL (CHINESE) ACSY	M4
17	-		B62-0870-00	INSTRUCTION MANUAL (DUTCH) ACSY	E3
18	3B	•	B72-1425-04	MODEL NAME PLATE (FRA TA)	
19	3B	•	B72-1340-04	MODEL NAME PLATE	K
19	3B	•	B72-1341-04	MODEL NAME PLATE	M2,M4
19	3B		B72-1342-04	MODEL NAME PLATE	E,E3
20	1B		E04-0167-05	RF COAXIAL RECEPTACLE(M)	K,M2,M4
20	1B		E04-0170-05	RF COAXIAL RECEPTACLE(N)	E,E3
21	-		E30-2111-15	DC CORD ASSY(MOBILE)	ACSY
22	-	•	E30-2137-15	DC CORD	
			E30-3006-08	MIC DUAL CABLE(TO SERVICE)	E,E3
			E39-3006-08	MIC DUAL CABLE(TO SERVICE)	M2,M4,E
			E39-3240-08	MIC DUAL CABLE(TO SERVICE)	K
		•	E31-3197-15	LEAD WIRE WITH CONNECTOR(SP)	
24a	2A	•	E37-0632-05	FLAT CABLE (20P)	
24b	2A	•	E37-0724-05	FLAT CABLE (20P)	E,E3
CN1	-		E40-5653-05	PIN ASSY (LCD ASSY)	
CN2	-		E40-5409-05	PIN ASSY (LCD ASSY)	
25	2A		F07-1428-23	COVER (DIN 6P)	
26	1B		F07-1429-03	COVER (FAN)	
27	2B		F19-2233-04	SHIELDING COVER (VCO)	
28	-		F51-0017-05	FUSE(8*30)15A	ACSY
28	1B		F51-0017-05	FUSE(8*30)15A	
29	-		F51-0018-05	FUSE(8*30)20A	ACSY
30	2A		G02-0794-04	FLAT SPRING (CONT UNIT)	
31	1B		G02-0803-03	FLAT SPRING (AF AMP/AVR)	
			G02-0809-04	FLAT SPRING (TX-RX UNIT)	
33	3B		G09-0434-14	SPRING	
34	2A,3A		G10-0792-14	FIBROUS SHEET	
35	2A		G10-0793-14	FIBROUS SHEET	
36	3B		G10-0794-14	FIBROUS SHEET	
37	3B		G11-0779-04	RUBBER CUSHION (SP)	
38	2A		G11-0793-04	SHEET	
39	3B		G11-0794-04	SHEET	

Ref. No.	Address	New parts	Parts No.	Description	Destination
40	2B	•	G11-2533-04	SHEET	
41	3A		G13-1573-24	CUSHION (PANEL)	
42	3A		G13-1602-04	CUSHION (PANEL)	
43	3A		G13-1625-04	CUSHION (PANEL)	
44	3A		G13-1642-14	CUSHION (PANEL/BAND KEY)	
45			H10-0606-01	FOAM PACKING MOLD	
46			H11-0867-04	POLYSTYRENE FOAMED BOARD	
47			H25-0103-04	PROTECTION BAG (125/250/0.07)	
48			H25-0337-04	PROTECTION BAG (180/390/0.03)	
49			H25-0722-04	PROTECTION BAG (230/460/0.07)	
50	-	•	H52-1078-02	ITEM CARTON CASE	K
50	-	•	H52-1079-02	ITEM CARTON CASE	M2,M4
50	-	•	H52-1080-02	ITEM CARTON CASE	E,E3
51		•	J19-1526-04	HOLDER	ACSY
52			J29-0632-13	BRACKET (MOBLE)	ACSY
53	3A		J30-1237-14	SPACER	
54	3A		K27-3164-13	BUTTON KNOB (KEYS+DIM)	
55	3A		K27-3165-03	BUTTON KNOB (POWER/CALL)	
56	3A		K27-3166-23	BUTTON KNOB (VFO)	
57	3A		K27-3167-33	BUTTON KNOB (MR)	
58	3A		K27-3168-23	BUTTON KNOB (PM)	
59	3A		K27-3169-33	BUTTON KNOB (MENU)	
60	3B		K27-3170-13	LEVER KNOB (RELEASE)	
61	5A	•	K27-3174-13	BUTTON KNOB (BAND)	
62	3A	•	K27-3175-03	BUTTON KNOB (MHZ)	
63	3A	•	K29-5221-03	KNOB (ENCODER)	
64	3A	•	K29-5222-03	KNOB (VOL)	
65	3A	•	K29-5223-03	KNOB (SQL)	
A	3A		N14-0959-04	CIRCULAR NUT(VOL)	
B	1B,3B		N33-2606-45	OVAL HEAD MACHINE SCREW (CABI)	
C	2B,3B		N67-3008-40	PAN HEAD SEMS SCREW W (MODULE)	
D	3B		N80-7010-45	PAN HEAD TAPTITE SCREW (PANEL)	
E	1B		N80-2610-45	PAN HEAD TAPTITE SCREW (FAN)	
F	2A		N83-2005-46	PAN HEAD TAPTITE SCREW	
G	1B,2B		N83-2608-46	PAN HEAD TAPTITE SCREW	
H	2B		N87-2606-46	BRAZIER HEAD TAPTITE SCREW	
66			N99-0391-05	SCREW SET (MOBILE)	ACSY	E,E3
66			N99-0391-05	SCREW SET (MOBILE)	ACSY	M2,M4
67			N99-0392-05	SCREW SET	ACSY	K
SW1-3			S70-0488-05	TACT SWITCH (LCD ASSY)	
SW4			W02-1321-05	ENCODER (LCD ASSY)	
SW5-9			S70-0499-05	TACT SWITCH (LCD ASSY)	
SP	1B		T67-0331-05	SPEAKER	
68	1B		T42-031 1-15	FANMOTOR	
MIC	-		T91-0396-05	MICROPHONE	ACSY	E,E3
	-		T91-0396-05	MICROPHONE	ACSY	M2,M4
	-		T91-0570-08	MIC ELEMENT (TO SERVICE)	K
MIC	-	•	T91-0608-05	MICROPHONE	ACSY	K
IC1	-		LA4446	IC(AF POWER AMP)	
IC2	-		TA78Q05	IC(REGULATOR)	
IC3	2B	•	M67746	IC(POWER MODULE,VHF)	
IC4	2B	•	M57788MR-24	IC(POWER MODULE(430-450MHz)35W)	
IC1	-	•	76P08AGCJTU0	IC(CPU,LCD ASSY)	

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PARTS LIST

Ref. No.	Address	New parts	Parts No.	Description	Destination
TX-RX UNIT (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3					
C1,2			CK73GB1H102K	CHIP C	1000PF K
C3			C92-0568-05	CHIP-ELE	100UF 16WV
C4			CK73GB1H103K	CHIP C	0.010UF K
C5			CK73GB1E223K	CHIP C	0.022UF K
C6			CK73GB1H102K	CHIP C	1000PF K
C7			CC73GC1H010B	CHIP C	1.0PF B
C8,9			CK73GC1H040C	CHIP C	4.0PF C
C10			CK73GB1H102K	CHIP C	1000PF K
C11			CK73GB1H103K	CHIP C	0.010UF K
C12			CK73GB1H102K	CHIP C	1000PF K
C13			CK73GB1H103K	CHIP C	0.010UF K
C14,15			CC73GCH1H030C	CHIP C	3.0PF C
C17			CK73GB1H471K	CHIP C	470PF K
C18			CC73GCH1H050C	CHIP C	5.0PF C
C19			CK73GCH1H060D	CHIP C	6.0PF D
C20			CC73GCH1H190D	CHIP C	19PF D
C21			CK73GB1H471K	CHIP C	470PF K
C23,24			CK73GB1C104K	CHIP C	0.10UF K
C26			CK73GB1H471K	CHIP C	470PF K
C27			CC73GCH1H101J	CHIP C	100PF J
C29			CK73GB1H102k	CHIP C	1000PF K
C30			CK73GB1C473k	CHIP C	0.047UF K
C33,34			C92-0002-05	CHIP-TAN	0.22UF 35WV
C35,36			C92-0896-05	CHIP-TAN	10UF 16WV
C37,38			C92-0511-05	CHIP-TAN	0.15UF 35WV
C39			C92-0696-05	CHIP-TAN	4.7UF 10WV
C40			CC73GCH1H101J	CHIP C	100PF J
C41			CK73GB1H103K	CHIP C	0.0100F K
C42			C92-0696-05	CHIP-TAN	4.7UF 10WV
C43			CC73GCH1H101J	CHIP C	100PF J
C44			CK73GB1H103K	CHIP C	0.010UF K
C45			C92-0593-05	CHIP-ELE	33UF 16WV
C46			CK73GB1H102K	CHIP C	1000PF K
C47			CC73GCH1H030C	CHIP C	3.0PF C	E,E3
C48,50			CK73GCH1H040C	CHIP C	4.0PF C
C51			CC73GCH1H150J	CHIP C	15PF J
C52,53			CK73GB1H102K	CHIP C	1000PF K
C54			CC73GCH1H050C	CHIP C	5.0PF C
C56			CC73GCH1H080D	CHIP C	8.0PF D
C58			CC73GCH1H010B	CHIP C	1.0PF B
C57			CK73GB1H471K	CHIP C	470PF K
C58			CK73GB1H102K	CHIP C	1000PF K
C59			CK73F81A105K	CHIP C	7.0UF K
C60			CC73GCH1H101J	CHIP C	100PF J
C61-63			CK73GB1H102K	CHIP C	1000PF K
C64			CK73GB1H471K	CHIP C	470PF K
C65			CC73GCH1H120J	CHIP C	12PF J
C66			CK73GB1H102K	CHIP C	1000PF K
C67			CK73GB1H471K	CHIP C	470PF K
C68			CK73GB1H102K	CHIP C	1000PF K
C69			CK73GB1H471K	CHIP C	470PF K
C70			CC73GCH1H390J	CHIP C	39PF J
C71			CK73GB1H102K	CHIP C	1000PF K
C72			CK73GB1H471K	CHIP C	470PF K
C73			CK73GB1C104K	CHIP C	0.10UF K
C74			CC73GCH1H080D	CHIP C	8.0PF D
C75			CK73GB1H471K	CHIP C	470PF K
C76			CK73GB1H102K	CHIP C	1000PF K

Ref. No.	Address	New parts	Parts No.	Description	Destination
C77			CK73GB1H471K	CHIP C	470PF K
C78			CK73GB1H102K	CHIP C	1000PF K
C79			CK73GB1H471K	CHIP C	470PF K
C80			CK73F81A105K	CHIP C	1.0UF K
C81			CC73GCH1H050C	CHIP C	5.0PF C
C82			CC73GCH1H330J	CHIP C	33PF J
C83			C92-0523-05	CHIP-ELE	10UF 16WV
C84			CK73GB1H102K	CHIP C	1000PF K
C85			CC73GCH1H101J	CHIP C	100PF J
C87			CK73GB1H102K	CHIP C	1000PF K
C88			CC73GCH1H101J	CHIP C	100PF J
C89			CK73GB1H102K	CHIP C	1000PF K
C90,91			CK73GB1H103K	CHIP C	0.010UF K
C92,93			CK73GB1H102K	CHIP C	1000PF K
C94			C92-0523-05	CHIP-ELE	10UF 16WV
C95,96			CK73GB1H102K	CHIP C	1000PF K
C97			C92-0572-05	CHIP C	100PF J
C98			C93-0595-05	CHIP C	5.0PF C
C99			CK73GB1H103K	CHIP C	0.0100U K
C101			CK73GB1H102K	CHIP C	1000PF K
C102			C93-0580-05	CHIP C	16PF D
C103			CC73GCH1H0R5B	CHIP C	0.5PF B
C104			CC73GCH1H131J	CHIP C	130PF J
C105			C92-0610-05	CHIP-ELE	47UF 16WV
C106			C93-0554-05	CHIP C	4.0PF C
C107			CK73GB1C104K	CHIP C	0.10UF K
C108			CC73GCH1H390J	CHIP C	39PF J
C109,110			CK73GB1H102K	CHIP C	1000PF K
C111			C93-0572-05	CHIP C	100PF J
C112			C93-0584-05	CHIP C	22PF J
C113			C93-0580-05	CHIP C	8.0PF D
C114,115			CK73GB1H102K	CHIP C	1000PF K
C116			CC73GCH1H0R5B	CHIP C	0.5PF B
C117			CC73GCH1H020B	CHIP C	2.0PF B
C118			CC73GCH1H0R5B	CHIP C	0.5PF B
C119			CC73GCH1H010B	CHIP C	1.0PF B
C120			CC73GCH1H0R5B	CHIP C	0.5PF B
C121			CC73GCH1H020B	CHIP C	2.0PF B
C123			CK73GB1H103K	CHIP C	0.010UF K
C124			C93-0586-05	CHIP C	33PF J
C125			C93-0557-05	CHIP C	7.0PF D
C126			CK73GB1H102K	CHIP C	1000PF K
C127			CK73GB1C104K	CHIP C	0.10UF K
C128			C92-0567-05	CHIP C	39PF J
C129			CC73GCH1H0R5B	CHIP C	0.5PF B
C130			CC73FCH1H0R5B	CHIP C	0.5PF B
C131			CK73GB1C104K	CHIP C	0.10UF K
C132			CC73GCH1H0R5B	CHIP C	0.5PF B
C133			CC73GCH1H010B	CHIP C	1.0PF B
C134			CK73GB1C104K	CHIP C	0.10UF K
C135			C93-0655-05	CHIP C	5.0PF C
C136			C93-0557-05	CHIP C	7.0PF D
C137			CK73GB1H102K	CHIP C	1000PF K
C138			C93-0584-05	CHIP C	22PF J
C139,140			C93-0555-05	CHIP C	5.0PF C
C141			C92-0958-05	CHIP-ELE	100UF 16WV
C142			CK73GB1H103K	CHIP C	0.0100F K
C143			CK73F81A106K	CHIP C	1.0UF K
C144-146			CK73GB1H103K	CHIP C	0.0100F K
C147,148			C92-0610-05	CHIP-ELE	47UF 16WV

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TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
C149			CC73GCH1H030C	CHIP C 3.9PF C	
C150			CK73GB1H101-J	CHIP C 100PF J	
C151			CC73GCH1H24GJ	CHIP C 24PF J	
C152			CK73GB1H102K	CHIP C 1000PF K	
C153			CK73GB1H471K	CHIP C 470PF K	
C154			CC73GCH1H101-J	CHIP C 100PF J	
C155			CK73GB1H471K	CHIP C 470PF K	
C156			CC73GCH1H030C	CHIP C 3.0PF C	
C157			CK73GB1H102K	CHIP C 1000PF K	
C158			CC73GCH1H020B	CHIP C 2.0PF B	
C159			CK73GB1H471K	CHIP C 470PF K	
C160			CK73GB1H102K	CHIP C 1000PF K	
C161			CK73GB1H471K	CHIP C 470PF K	
C162			CC73GCH1H1R5B	CHIP C 1.5PF B	
C163-165			CC73GCH1H101-J	CHIP C 100PF J	
C166,167			CK73GB1H102K	CHIP C 1000PF K	
C168			CC73GCH1H030C	CHIP C 3.6PF C	
C169			CK73GB1H103K	CHIP C 0.010UF K	
C170			CK73GB1H471K	CHIP C 470PF K	
C171			CC73GCH1H020B	CHIP C 2.0PF B	
C172			CK73GB1H102K	CHIP C 1000PF K	
C173			CC73GCH1H020B	CHIP C 2.0PF B	
C174			CK73GB1H102K	CHIP C 1000PF K	
C175			CC73GCH1H270J	CHIP C 27PF J	
C176			CC73GCH1H020B	CHIP C 2.0PF B	
C177			CK73GB1H102K	CHIP C 1000PF K	
C178			CC73GCH1H270J	CHIP C 27PF J	
C179			CC73GCH1H101-J	CHIP C 100PF J	
C180			CC73GCH1H020B	CHIP C 2.0PF B	
C181			CK73GB1H102K	CHIP C 1000PF K	
C183			CC73GCH1H0R5B	CHIP C 0.5PF B	
C184			CK73GB1H102K	CHIP C 1000PF K	
C185			CK73GB1H471K	CHIP C 470PF K	
C186			CC73GCH1H270J	CHIP C 27PF J	
C187			CK73GB1H102K	CHIP C 1000PF K	
C188			CC73GCH1H040C	CHIP C 4.0PF C	
C191			CK73GB1H471K	CHIP C 470PF K	
C193			CK73GB1H471K	CHIP C 470PF K	
C196			CK73GB1H471K	CHIP C 470PF K	
C197			CC73GCH1H1R5B	CHIP C 1.5PF B	
C198			CK73GB1H471K	CHIP C 470PF K	
C200			CK73GB1H471K	CHIP C 470PF K	
C202			CK73GB1H102K	CHIP C 1000PF K	
C203			CK73GB1H471K	CHIP C 470PF K	
C205			CK73GB1H103K	CHIP C 0.010UF K	
C207			CK73GB1H471K	CHIP C 470PF K	
C208			CC73GCH1H006D	CHIP C 6.0PF D	
C209			CK73GB1H102K	CHIP C 1000PF K	
C210			CC73GCH1H020B	CHIP C 2.0PF B	
C211			CK73GB1E223K	CHIP C 0.022UF K	E,E3
C211			CK73GB1E223K	CHIP C 0.022UF K	M2,M4
C212			CC73GCH1H040B	CHIP C 1.0PF B	
C213			CK73GB1H103K	CHIP C 0.010UF K	
C214			CC73GCH1H040C	CHIP C 4.0PF C	
C215			CC73GCH1H820J	CHIP C 82PF J	
C216			CK73GB1H102K	CHIP C 1000PF K	
C217			CK73GB1H471K	CHIP C 470PF K	
C218			CK73GB1H103K	CHIP C 0.010UF K	
C219			CK73GB1H102K	CHIP C 1000PF K	
C220			CK73GB1H103K	CHIP C 0.010UF K	

Ref. No.	Address	New parts	Parts No.	Description	Destination
C221			CK73GB1H102K	CHIP C 1000PF K	
C222			CC73GCH1H080D	CHIP C 8.0PF D	
C223			CK73GB1H102K	CHIP C 1000PF K	
C224			CK73GB1E223K	CHIP C 0.022UF K	E,E3
C224			CK73GB1E223K	CHIP C 0.022UF K	M2,M4
C225			CK73GB1H562K	CHIP C 5600PF K	E,E3
C225			CK73GB1H562K	CHIP C 5600PF K	M2,M4
C226			CK73GB1H103K	CHIP C 0.010UF K	
C227			C92-0958-05	CHIP-ELE 100UF 16WV	
C228			CE94EW1H470M	ELECTRO 47UF 50WV	
C229			CK73GB1H102K	CHIP C 1000PF K	
C230			C92-0610-05	CHIP-ELE 47UF 16WV	M2,M4
C231			CE94EW1C471M	ELECTRO 470UF 16WV	E,E3
C231			CE94EW1C471M	ELECTRO 470UF 16WV	M2,M4
C232			CK73GB1C104K	CHIP C 0.10UF K	E,E3
C232			CK73GB1C104K	CHIP C 0.10UF K	M2,M4
C233			CC73GCH1H101-J	CHIP C 100PF J	
C234			CK73GB1H102K	CHIP C 1000PF K	
C236			CK73GB1H103K	CHIP C 0.010UF K	
C236			C92-0610-05	CHIP-ELE 47UF 16WV	
C237			CE94EW1H470M	ELECTRO 47UF 50WV	
C238			CK73GB1H103K	CHIP C 0.010UF K	
C239			CK73GB1H562K	CHIP C 5600PF K	
C240			CK73GB1C104K	CHIP C 0.10UF K	
C241			CC73GCH1H390J	CHIP C 39PF J	
C242			CC73GCH1H820J	CHIP C 82PF J	
C243			C92-0610-05	CHIP-ELE 47UF 16WV	
C244			CK73GB1C104K	CHIP C 0.10UF K	
C245			CC73GCH1H680J	CHIP C 68PF J	
C246			CC73GCH1H101-J	CHIP C 100PF J	
C247			CC73GCH1H820J	CHIP C 82PF J	
C248			CK73GB1H103K	CHIP C 0.010UF K	
C249			CC73GCH1H180-J	CHIP C 18PF J	
C250			CK73GB1H102K	CHIP C 1000PF K	
C251			CK73GB1H103K	CHIP C 0.010UF K	
C252-254			CK73GB1C104K	CHIP C 0.10UF K	
C255			C92-0004-05	CHIP-TAN 1.0UF 16WV	
C256			CK73GB1C333K	CHIP C 0.033UF K	
C257,258			CC73GCH1H101-J	CHIP C 100PF J	
C259			CK73GB1CA73K	CHIP C 0.047UF K	
C260			CK73GB1H103K	CHIP C 0.010UF K	
C262			CK73GB1H103K	CHIP C 0.010UF K	
C263			C92-0658-05	CHIP-ELE 100UF 16WV	
C264			CC73GCH1H101-J	CHIP C 100PF J	
C266			CK73GB1H103K	CHIP C 0.010UF K	
C267			CC73GCH1H270J	CHIP C 27PF J	
C268,269			CK73GB1H103K	CHIP C 0.010UF K	
C270			CK73GB1H272K	CHIP C 2700PF K	
C271			CK73GB1H103K	CHIP C 0.010UF K	
C272			CK73GB1C104K	CHIP C 0.10UF K	
C273			C92-0001-05	CHIP C 0.1UF 35WV	
C274			CK73GB1H102K	CHIP C 1000PF K	
C275			C90-4053-05	ELEC-CAP 1000UF 18WV	
C276			C92-0004-05	CHIP-TAN 1.0UF 16WV	
C277			C90-4053-05	ELEC-CAP 1000UF 16WV	
C278			C92-0610-05	CHIP-ELE 47UF 16WV	
C279			CE94EW1C471M	ELECTRO 470UF 16WV	
C280			CK73GB1C104K	CHIP C 0.10UF K	
C281			CK73GB1E223K	CHIP C 0.022UF K	

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TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description		Destination
C282			CK73GB1H103K	CHIP C	0.010UF K	
C283-287			CK73GB1H102K	CHIP C	1000PF K	
C288			CK73GB9E223K	CHIP C	0.022UF K	
C290			CK73FB1A105K	CHIP C	1.0UF K	
C291			CK73GB1H102K	CHIP C	1000PF K	E,E3
C291			CK73GB1H102K	CHIP C	1000PF K	M2,M4
C292			CK73GB1C104K	CHIP C	0.10UF K	E,E3
C292			CK73GB1C104K	CHIP C	0.10UF K	M2,M4
C505,506			CK73GB1H102K	CHIP C	1000PF K	
C507			CK73GB1H103K	CHIP C	0.010UF K	
C508			CC73GCH1H101J	CHIP C	100PF J	
C509			CK73GB1H471K	CHIP C	470PF K	
C510			CK73GB1H103K	CHIP C	0.010UF K	
C511			CE04CWK0J331M	ELECTRO	330UF 6.3WV	
C512			CC73GCH1H101J	CHIP C	100PF J	
C513			C92-0546-05	CHIP-TAN	68UF 6.5WV	
C514			CK73GB1C104K	CHIP C	0.10UF K	
C515			C92-0606-05	CHIP-TAN	4.7UF 10WV	
C516			C92-0556-05	CHIP-ELE	100UF 16WV	
C517			CK73GB1H103K	CHIP C	0.01UF K	
C518			CK73FB1A105K	CHIP C	1.0UF K	
C519			CK73GB1H471K	CHIP C	470PF K	
C521			CK73GB1C104K	CHIP C	0.10UF K	
C572,523			CK73GB1H103K	CHIP C	0.010UF K	
C524,525			CK73GB1C104K	CHIP C	0.10UF K	
C528			CC73GCH1H220J	CHIP C	22PF J	
C529			CK73GB1H102K	CHIP C	1000PF K	
C531			CK73GB1H103K	CHIP C	0.010UF K	K,M2,M4
C532			CC73GCH1H101J	CHIP C	100PF J	
C534			CC73GCH1H330J	CHIP C	33PF J	
C535			CK73GB1H103K	CHIP C	0.010UF K	K,M2,M4
C536			CC73GCH1H100D	CHIP C	10PF D	
C537			C92-0005-05	CHIP-TAN	2.2UF 6.5WV	
C539			CK73GB1E223K	CHIP C	0.022UF K	
C540			CK73GB1H102K	CHIP C	1000PF K	
C541			CC73GCH1H100D	CHIP C	10PF D	
C542			CK73GB1H103K	CHIP C	0.010UF K	
C543,544			C92-0004-05	CHIP-TAN	1.0UF 16WV	
C546			CK73GB1C104K	CHIP C	0.10UF K	
C547			CK73FB1C474K	CHIP C	0.47UF K	
C548			CK73GB1H102K	CHIP C	1000PF K	
C550			CK73GB1H103K	CHIP C	0.010UF K	E,E3
C551,552			CK73GB1C104K	CHIP C	0.10UF K	
C553			CK73GB1H103K	CHIP C	0.010UF K	
C554			C92-0606-05	CHIP-TAN	4.7UF 10WV	
C555			CK73FB1A105K	CHIP C	1.0UF K	
C556			CK73GB1C104K	CHIP C	0.10UF K	
C557,558			CK73GB1H471K	CHIP C	470PF K	
C559			CK73GB1H272K	CHIP C	2700PF K	
C560,561			CC73GCH1H101J	CHIP C	100PF J	
C562			CK73GB1H103K	CHIP C	0.010UF K	
C563			CC73GCH1H101J	CHIP C	100PF J	
C564			CK73GB1H102K	CHIP C	1000PF K	K,M2,M4
C564			CK73GB1H103K	CHIP C	0.010UF K	E,E3
C565,566			CC73GCH1H101J	CHIP C	100PF J	
C567			CK73GB1H103K	CHIP C	0.010UF K	
C568-571			CK73FB1A105K	CHIP C	1.0UF K	
C572-575			CC73GCH1H101J	CHIP C	100PF J	
C576,577			CK73GB1H103K	CHIP C	0.010UF K	
C578			CK73GB1H103K	CHIP C	0.010UF K	K,M2,M4

Ref. No.	Address	New parts	Parts No.	Description		Destination
C580			CK73GB1C104K	CHIP C	0.10UF K	
C582			CK73GB1H103K	CHIP C	0.010UF K	
TC1			CB5-0394-05	CERAMIC TRIMMER CAP(10P)		
CN1			E40-3237-05	PIN ASSY(2P)		
CN2			E23-0486-05	TERMINAL		
CN3,4			E40-5744-05	FLAT CABLE CONNECTOR(20P)		
CN5			E40-3237-05	PIN ASSY(2P)		
CN501			E40-5852-45	PIN ASSY(4P)		
CN502,503			E40-5744-05	FLAT CABLE CONNECTOR(20P)		
CN504			E40-5618-05	FLAT CABLE CONNECTOR(8P)		
CN701			E40-5392-05	PIN ASSY(9P)		
J1			E11-0448-05	3.5D PHONE JACK(3P)		
J501			E50-0404-05	RF COAXIAL RECEPTACLE(ROUND)		
J502			E08-0877-05	MODULAR JACK		
W501,502			E37-0459-05	PROCESSED LEAD WIRE		K
F1			F53-0126-05	FUSE (0.5A 50V)		
F2,3			F50-0106-05	FUSE (1.8A 50V)		
F4			F53-0114-05	FUSE (0.7A 50V)		
F501			F50-9106-05	FUSE (1.8A 50V)		
CD1			L79-1115-05	TUNING COIL(450KHZ)		
CF1			L72-0931-05	CERAMIC FILTER		
L1			L40-4771-36	SMALL FIXED INDUCTOR(47NH)		
L2			L40-3971-36	SMALL FIXED INDUCTOR(39NH)		
L3			L40-2281-37	SMALL FIXED INDUCTOR(82NH)		
L4			L40-2271-36	SMALL FIXED INDUCTOR(27NH)		
L5			L40-1581-37	SMALL FIXED INDUCTOR(0.150UH)		
L6,7			L40-2271-36	SMALL FIXED INDUCTOR(27NH)		
L8			L40-1271-36	SMALL FIXED INDUCTOR(12NH)		
L9			L40-3371-36	SMALL FIXED INDUCTOR(33NH)		
L10			L40-1591-36	SMALL FIXED INDUCTOR(15NH)		
L11			L40-2771-36	SMALL FIXED INDUCTOR(27NH)		
L12			L40-8871-36	SMALL FIXED INDUCTOR(88NH)		
L13,14			L34-1239-05	AIR-CORE COIL(1.0 5T)		
L15			L34-4404-05	AIR-CORE COIL(3.5T)		
L16			L34-0742-05	AIR-CORE COIL(5T)		
L17			L34-0895-06	AIR-CORE COIL(8T)		
L18			L34-1185-05	AIR-CORE COIL(2.5T)		
L19			L34-0498-05	AIR-CORE COIL(4T)		
L20			L34-1239-05	AIR-CORE COIL(10.5T)		
L21			L34-1239-05	AIR-CORE COIL(2.5T)		
L22			L34-0499-05	AIR-CORE COIL(4T)		
L23			L34-1068-05	AIR-CORE COIL(2.5T)		
L24			L34-1239-05	AIR-CORE COIL(1T)		
L25			L34-1059-05	AIR-CORE COIL(1.5T)		
L26			L34-0498-05	AIR-CORE COIL(4T)		
L27			L34-4402-05	AIR-CORE COIL(2.5T)		
L28			L34-0498-05	AIR-CORE COIL(4T)		
L29			L34-4402-05	AIR-CORE COIL(2.5T)		
L30			L40-4771-38	SMALL FIXED INDUCTOR(47NH)		
L31			L40-8275-54	SMALL FIXED INDUCTOR(82NH)		
L32			L40-1071-36	SMALL FIXED INDUCTOR(10NH)		
L34			L40-4771-36	SMALL FIXED INDUCTOR(47NH)		
L35			L40-8861-36	SMALL FIXED INDUCTOR(6.8NH)		
L36			L40-1271-36	SMALL FIXED INDUCTOR(12NH)		
L38-40			L40-6861-36	SMALL FIXED INDUCTOR(6.8NH)		
L41			L79-1432-05	FILTER (435MHZ)		E,E3
L41			L79-1432-05	FILTER (435MHZ)		M2,M4

TM-G707A/E

PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
L41			L79-1433-05	FILTER (444MHZ)	K
L42			L40-8861-36	SMALL FIXED INDUCTOR(8.8NH)	
L43			L34-4543-05	COIL (2.5T)	
L44			L40-1075-44	SMALL FIXED INDUCTOR(10.0NH)	
L45			L40-2771-36	SMALL FIXED INDUCTOR(27NH)	
L46			L40-2271-36	SMALL FIXED INDUCTOR(22NH)	
L48		*	L34-4542-05	COIL (3T)	
L49			L40-4771-36	SMALL FIXED INDUCTOR(47NH)	
L51			L40-1051-37	SMALL FIXED INDUCTOR(1,000UH)	
L52		*	L34-4542-05	COIL (3T)	
L53		*	L79-1525-05	FILTER MODULE(435MHZ)	E,E3
L53			L79-1525-05	FILTER MODULE(435MHZ)	M2,M4
L53			L79-1526-05	FILTER MODULE(444MHZ)	K
L54			L40-3971-36	SMALL FIXED INDUCTOR(39NH)	
L55			L40-1581-37	SMALL FIXED INDUCTOR(0.150UH)	
L57			L40-2271-36	SMALL FIXED INDUCTOR(22NH)	
L58			L40-1581-37	SMALL FIXED INDUCTOR(0.150UH)	
L59			L40-4771-36	SMALL FIXED INDUCTOR(47NH)	
L60			L40-5661-37	SMALL FIXED INDUCTOR(0.560UH)	
L61			L40-1281-37	SMALL FIXED INDUCTOR(0.120UH)	
L63			L40-6861-36	SMALL FIXED INDUCTOR(6.8NH)	
L501			L92-0131-05	FERRITE CHIP	
X1			L77-1573-05	CRYSTAL RESONATOR(12.8MHZ)	
X501			L77-1476-05	CRYSTAL RESONA TOR(4.194304MHZ)	
XF1			L71-0481-05	MCF (38SC15B)	
CP501			R90-0724-05	MULTI-COMP 1K X4	
CP502			R90-0714-05	MULTI-COMP 10K X4	
R1			R92-0685-05	CHIP R 22 J 1/2W	
R2			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R3			RK73GB1J101J	CHIP R 100 J 1/16W	
R4			RK73GB1J471J	CHIP R 470 J 1/16W	
R5			RK73GB1J473J	CHIP R 47K J 1/16W	
R7,8			RK73GB1J473J	CHIP R 47K J 1/16W	
R10,11			RK73GB1J331J	CHIP R 330 J 1/16W	
R12,13			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R14,15			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R16			RK73GB1J223J	CHIP R 22K J 1/16W	
R17			RK73GB1J220J	CHIP R 22 J 1/16W	
R18			RK73GB1J223J	CHIP R 22K J 1/16W	
R19-21			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R22			RK73GB1J273J	CHIP R 27K J 1/16W	
R23			RK73GB1J183J	CHIP R 18K J 1/16W	
R24			R92-1252-05	CHIP R 0 OHM	
R25			RK73GB1J333J	CHIP R 33K J 1/16W	
R26			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R27			RK73GB1J103J	CHIP R 10K J 1/16W	
R30			RK73GB1J101J	CHIP R 100 J 1/16W	
R31			RK73GB1J473J	CHIP R 47K J 1/16W	
R32			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R33			RK73GB1J122J	CHIP R 1.2K J 1/16W	
R34			RK73GB1J331J	CHIP R 3.3K J 1/16W	
R35			RK73GB1J122J	CHIP R 1.2K J 1/16W	
R36			RK73GB1J331J	CHIP R 330 J 1/16W	
R37			RK73GB1J182J	CHIP R 1.8K J 1/16W	
R38			RK73GB1J331J	CHIP R 330 J 1/16W	
R39			RK73GB1J471J	CHIP R 470 J 1/16W	
R40,41			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R42			RK73GB1J473J	CHIP R 47K J 1/16W	
R43			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R44,45			RK73GB1J101J	CHIP R 100 J 1/16W	
R46,47			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R48			RK73GB1J471J	CHIP R 470 J 1/16W	
R49,50			RK73GB1J473J	CHIP R 47K J 1/16W	
R51			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R52			RK73GB1J470J	CHIP R 47 J 1/16W	E,E3
R52			R92-1252-05	CHIP R 0 OHM	K,M2,M4
R53			RK73GB1J471J	CHIP R 470 J 1/16W	
R54			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R55			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R56			RK73GB1J470J	CHIP R 47 J 1/16W	E,E3
R56			R92-1252-05	CHIP R 0 OHM	K,M2,M4
R57,58			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R59			RK73GB1J100J	CHIP R 10 J 1/16W	
R60			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R61			RK73GB1J223J	CHIP R 22K J 1/16W	
R62			RK73GB1J822J	CHIP R 8.2K J 1/16W	
R63			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R64			RK73GB1J100J	CHIP R 10 J 1/16W	
R65			RK73GB1J101J	CHIP R 100 J 1/16W	
R66,67			RK73GB1J223J	CHIP R 2.2K J 1/16W	
R68			RK73GB1J560J	CHIP R 56 J 1/16W	
R69			RK73GB1J471J	CHIP R 470 J 1/16W	
R70			RK73GB1J221J	CHIP R 220 J 1/16W	
R71			RK73GB1J4R7J	CHIP R 4.7 J 1/16W	
R72			RK73GB1J470J	CHIP R 47 J 1/16W	
R73			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R74			RK73GB1J100J	CHIP R 10 J 1/16W	
R75			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R76			RK73GB1J681J	CHIP R 680 J 1/16W	
R77			RK73FB2A100J	CHIP R 10 J 1/10W	
R78			RK73GB1J331J	CHIP R 330 J 1/16W	
R79			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R80			R92-0895-05	CHIP R 22 J 1/2W	
R82			R92-0685-05	CHIP R 22 J 1/2W	
R85			RK73FB2A821J	CHIP R 820 J 1/10W	E,E3
R86			RK73FB2A5R6J	CHIP R 5.6 J 1/10W	
R87			R92-0870-05	CHIP R 0 OHM	
R88			R92-2581-05	RESISTOR 220 1W	
R89,90			R92-1213-05	CHIP R 100 J 1/2W	
R91,92			RK73GB1J103J	CHIP R 10K J 1/16W	
R93			R92-2581-05	RESISTOR 220 1W	
R94			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R95			RK73GB1J103J	CHIP R 10K J 1/16W	
R96			RK73GB1J153J	CHIP R 15K J 1/16W	
R97			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R98			RK73GB1J683J	CHIP R 68K J 1/16W	
R99			RK73GB1J223J	CHIP R 22K J 1/16W	
R100			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R101			RK73GB1J103J	CHIP R 10K J 1/16W	
R102			RK73GB1J223J	CHIP R 22K J 1/16W	
R103			RK73GB1J103J	CHIP R 10K J 1/16W	
R104			RK73GB1J683J	CHIP R 68K J 1/16W	
R105			RK73GB1J103J	CHIP R 10K J 1/16W	
R106			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R107			RK73GB1J473J	CHIP R 47K J 1/16W	
R108			RK73GB1J223J	CHIP R 22K J 1/16W	
R109			RK73GB1J181J	CHIP R 180 J 1/16W	
R110			R92-1252-05	CHIP R 0 OHM	
R111			RK73GB1J103J	CHIP R 10K J 1/16W	
R112			RK73GB1J181J	CHIP R 180 J 1/16W	

PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Adress	New parts	Parts No.	Description	Destination
R113-117			RK73GB1J103J	CHIP R 10K J 1/16W	
R118-122			RK73GB1J182J	CHIP R 1.8K J 1/16W	
R123			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R124			R92-1252-05	0 OHM	
R125			RK73GB1J184J	CHIP R 180K J 1/16W	
R126			RK73GB1J223J	CHIP R 22K J 1/16W	
R127			RK73GB1J101J	CHIP R 100 J 1/16W	
R128			RK73GB1J104J	CHIP R 100K J 1/16W	
R129			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R130			RK73GB1J393J	CHIP R 39K J 1/16W	
R131			RK73GB1J221J	CHIP R 220 J 1/16W	
R132			RK73GB1J154J	CHIP R 150K J 1/16W	
R133			RK73GB1J823J	CHIP R 82K J 1/16W	
R134			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R135			RK73GB1J104J	CHIP R 100K J 1/16W	
R136,137			R92-1252-05	CHIP R 0 OHM	
R138			RK73GB1J473J	CHIP R 47K J 1/16W	
R139			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R140			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R141			RK73GB1J471J	CHIP R 470 J 1/16W	
R142			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R143			RK73GB1J471J	CHIP R 470 J 1/16W	
R144			RK73GB1J101J	CHIP R 100 J 1/16W	
R145			R92-1252-05	CHIP R 0 OHM	
R146			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R147			RK73GB1J101J	CHIP R 100 J 1/16W	
R148			R92-1252-05	CHIP R 0 OHM	
R149,150			RK73GB1J104J	CHIP R 100K J 1/16W	
R151			RK73GB1J151J	CHIP R 150 J 1/16W	
R152			RK73GB1J104J	CHIP R 100K J 1/16W	
R153			RK73GB1J184J	CHIP R 180K J 1/16W	
R154			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R155			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R156			RK73GB1J104J	CHIP R 100K J 1/16W	
R157			RK73GB1J220J	CHIP R 22 J 1/16W	
R158			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R159			RK73GB1J471J	CHIP R 470 J 1/16W	
R160			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R161,162			R92-1252-05	CHIP R 0 OHM	
R163,164			RK73GB1J221J	CHIP R 220 J 1/16W	
R165			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R166			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R168			RK73GB1J471J	CHIP R 470 J 1/16W	
R172			RK73GB1J102J	CHIP R 1.0K J 1/16W	K
R172			RK73GB1J473J	CHIP R 47K J 1/16W	E,E3
R172			RK73GB1J473J	CHIP R 47K J 1/16W	M2,M4
R173			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R174,175			RK73GB1J223J	CHIP R 22K J 1/16W	
R176			RK73GB1J223J	CHIP R 22K J 1/16W	
R177			RK73GB1J220J	CHIP R 22 J 1/16W	
R178			RK73GB1J470J	CHIP R 47 J 1/16W	
R179,180			RK73GB1J101J	CHIP R 100 J 1/16W	
R181			RK79GB1J102J	CHIP R 1.0K J 1/16W	
R182			R92-1252-05	CHIP R 0 OHM	
R183,184			RK73GB1J331J	CHIP R 330 J 1/16W	
R185			RK73GB1J124J	CHIP R 120K J 1/16W	E,E3
R185			RK73GB1J124J	CHIP R 120K J 1/16W	M2,M4
R186			RK73GB1J473J	CHIP R 47K J 1/16W	
R187			RK73GB1J473J	CHIP R 47K J 1/16W	
R188			RK73GB1J103J	CHIP R 10K J 1/16W	

Ref. No.	Adress	New parts	Parts No.	Description	Destination
R189			RK73GB1J122J	CHIP R 1.2K J 1/16W	
R190			RK73GB1J471J	CHIP R 470 J 1/16W	
R191			RK73GB1J101J	CHIP R 100 J 1/16W	
R192			R92-1252-05	CHIP R 0 OHM	
R192			RK73GB1J104J	CHIP R 100K J 1/16W	E,E3
R192			RK73GB1J104J	CHIP R 100K J 1/16W	M2,M4
R193			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R194			RK73GB1J103J	CHIP R 10K J 1/16W	E,E3
R194			RK73GB1J103J	CHIP R 10K J 1/16W	M2,M4
R194			R92-1252-05	CHIP R 0 OHM	K
R197			RK73GB1J4R7J	CHIP R 4.7 J 1/16W	E,E3
R197			RK73GB1J4R7J	CHIP R 4.7 J 1/16W	M2,M4
R198			RK73GB1J4R7J	CHIP R 4.7 J 1/16W	
R199			R92-1252-05	0 OHM	
R200			RK73GB1J334J	CHIP R 330K J 1/16W	
R201			R92-1252-05	CHIP R 0 OHM	
R202			RK73GB1J470J	CHIP R 47 J 1/16W	
R203			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R204			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R205			RK73GB1J103J	CHIP R 10K J 1/16W	
R206			RK73GB1J474J	CHIP R 470K J 1/16W	
R207			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R208			RK73GB1J182J	CHIP R 1.8K J 1/16W	
R209			RK73GB1J473J	CHIP R 47K J 1/16W	
R210			RK73GB1J331J	CHIP R 330 J 1/16W	
R211			RK73GB1J104J	CHIP R 100K J 1/16W	
R212			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R213			RK73GB1J334J	CHIP R 330K J 1/16W	
R214,215			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R216			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R217			R92-1276-05	CHIP R 820 J 1/4W	
R218			RK73GB1J103J	CHIP R 10K J 1/16W	
R219			R92-1252-05	CHIP R 0 OHM	
R220			RK73GB1J182J	CHIP R 1.8K J 1/16W	K
R220			R92-1252-05	CHIP R 0 OHM	E,E3
R220			R92-1252-05	CHIP R 0 OHM	M2,M4
R221			RK73GB1J333J	CHIP R 33K J 1/16W	
R223			RK73GB1J104J	CHIP R 100K J 1/16W	
R225			RK73GB1J104J	CHIP R 100K J 1/16W	
R250,251			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R252			R92-1252-05	CHIP R 0 OHM	
R253			RK73GB1J104J	CHIP R 100K J 1/16W	E,E3
R253			RK73GB1J104J	CHIP R 100K J 1/16W	M2,M4
R254,255			RC9FB2A821U	CHIP R 820 J 1/10W	
R501			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R502			R92-1252-05	CHIP R 0 OHM	
R506			RK73GB1J103J	CHIP R 10K J 1/16W	
R507			RK73GB1J122J	CHIP R 1.2K J 1/16W	
R508			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R509			RK73GB1J103J	CHIP R 10K J 1/16W	
R510,511			RK73GB1J473J	CHIP R 47K J 1/16W	
R512			RK73GB1J562J	CHIP R 5.6K J 1/16W	
R513			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R514			RK73GB1J223J	CHIP R 22K J 1/16W	
R515			RK73GB1J823J	CHIP R 82K J 1/16W	
R516			RK73GB1J564J	CHIP R 560K J 1/16W	
R517			RK73GB1J684J	CHIP R 680K J 1/16W	
R521			RK73GB1J394J	CHIP R 390K J 1/16W	
R522			RK73GB1J473J	CHIP R 47K J 1/16W	
R523			RK73GB1J104J	CHIP R 100K J 1/16W	
R524			RK73GB1J103J	CHIP R 10K J 1/16W	

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PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Adress	New parts	Parts No.	Description	Destination
R525,526			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R527			RK73GB1J473J	CHIP R 47K J 1/16W	
R528			RK73GB1J103J	CHIP R 10K J 1/16W	
R529			RK73GB1J823J	CHIP R 82K J 1/16W	
R530,531			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R532			RK73GB1J473J	CHIP R 47K J 1/16W	K,M2,M4
R533			RK73GB1J684J	CHIP R 680K J 1/16W	
R535			RK73GB1J473J	CHIP R 47K J 1/16W	
R536			RK73GB1J103J	CHIP R 10K J 1/16W	
R537			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R538,539			RK73GB1J473J	CHIP R 47K J 1/16W	
R540			RK73GB1J103J	CHIP R 10K J 1/16W	
R541			RK73GB1J184J	CHIP R 180K J 1/16W	K,M2,M4
R541			RK73GB1J394J	CHIP R 390K J 1/16W	E,E3
R542			RK73GB1J104J	CHIP R 100K J 1/16W	K,M2,M4
R543			RK73GB1J103J	CHIP R 10K J 1/16W	K,M2,M4
R544			RK73GB1J473J	CHIP R 47K J 1/16W	
R545			RK73GB1J274J	CHIP R 270K J 1/16W	
R546			R92-0879-05	CHIP R 0 OHM	M4,E,E3
R547,548			R92-1252-05	CHIP R 0 OHM	
R549			R92-0870-05	CHIP R 0 OHM	E,E3
R550			R92-0870-05	CHIP R 0 OHM	K,M2
R551			R92-0870-05	CHIP R 0 OHM	K,E,E3
R552			RK73GB1J334J	CHIP R 330K J 1/16W	
R554			RK73GB1J473J	CHIP R 47K J 1/16W	
R555			RK73GB1J123J	CHIP R 12K J 1/16W	
R556			RK73GB1J223J	CHIP R 22K J 1/16W	
R557			RK73GB1J104J	CHIP R 100K J 1/16W	
R558			RK73GB1J473J	CHIP R 47K J 1/16W	K,M2,M4
R559			RK73GB1J822J	CHIP R 8.2K J 1/16W	
R560			RK73GB1J123J	CHIP R 12K J 1/16W	
R562			RK73GB1J682J	CHIP R 6.8K J 1/16W	
R563			RK73GB1J473J	CHIP R 47K J 1/16W	
R567			RK73GB1J274J	CHIP R 270K J 1/16W	E,E3
R568			RK73GB1J473J	CHIP R 47K J 1/16W	
R571			RK73GB1J473J	CHIP R 47K J 1/16W	
R572			RK73GB1J123J	CHIP R 12K J 1/16W	
R574,575			RK73GB1J224J	CHIP R 220K J 1/16W	
R576			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R577			R92-1252-05	CHIP R 0 OHM	
R578			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R579,580			RK73GB1J103J	CHIP R 10K J 1/16W	
R581			RK73GB1J473J	CHIP R 47K J 1/16W	
R582			RK73GB1J124J	CHIP R 120K J 1/16W	
R583			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R584			RK73GB1J103J	CHIP R 10K J 1/16W	
R585			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R586,587			RK73GB1J473J	CHIP R 47K J 1/16W	
R588			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R589,590			RK73GB1J473J	CHIP R 47K J 1/16W	
R591			RK73GB1J393J	CHIP R 39K J 1/16W	
R592-594			RK73GB1J473J	CHIP R 47K J 1/16W	
R595			RK73GB1J103J	CHIP R 1.0K J 1/16W	
R596			RK73GB1J330J	CHIP R 33 J 1/16W	
R597,598			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R599			R92-1252-05	CHIP R 0 OHM	
R606			RK73GB1J100J	CHIP R 10 J 1/16W	
R661			RK73GB1J224J	CHIP R 220K J 1/16W	
R662			RK73GB1J104J	CHIP R 100K J 1/16W	
R663			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R604			RK73GB1J104J	CHIP R 100K J 1/16W	
R605			RK73GB1J103J	CHIP R 10K J 1/16W	
R606			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R607			RK73GB1J474J	CHIP R 470K J 1/16W	
R608			RK73GB1J101J	CHIP R 100 J 1/16W	
R609			R92-1252-05	CHIP R 0 OHM	
R610			RK73GB1J473J	CHIP R 47K J 1/16W	
R611			RK73GB1J105J	CHIP R 1.0M J 1/16W	E,E3
R612			RK73GB1J104J	CHIP R 100K J 1/16W	E,E3
R614			RK73GB1J471J	CHIP R 470 J 1/16W	E,E3,M2,M4
R615			RK73GB1J473J	CHIP R 47K J 1/16W	
R616			RK73GB1J103J	CHIP R 10K J 1/16W	K,M2,M4
VR701	3A	*	R31-0619-05	VARIABLE RESISTOR(VOL/SQL) 50K	
S501			S70-0424-05	TACT SWITCH(HARD RESET)	
S701	3B	*	S70-0461-05	TACT SWITCH(BAND)	
D1,2			MA2S077	DIODE	
D6,4			MA2S111	DIODE	
D5			1SS355	DIODE	
D6-9			MA2S077	DIODE	
D10			1SS355	DIODE	
D11,12			DA221	DIODE	
D13			HVU131	DIODE	
D14-16			MA4PH633	DIODE	
D17,18			MI809	DIODE	
D19-21			MA742	DIODE	
D22			DAN222	DIODE	
D23			MA742	DIODE	
D24			UDZ18(B)	ZENER DIODE	
D25			UDZ18(B)	ZENER DIODE	
D26			MA742	DIODE	
D27			MA2S077	DIODE	
D28,29			HVU350	VARIABLE CAPACITANCE DIODE	
D30			MA2S077	DIODE	
D31			HVU350	VARIABLE CAPACITANCE DIODE	
D33			DAN222	DIODE	
D34,35			1SS355	DIODE	
D37,38			MA2S077	DIODE	
D39			MA742	DIODE	
D40,41			DSM9MA1	DIODE	
D42,43			HVU131	DIODE	
D501			1SS355	DIODE	
D502			DTZ7.5(B)	ZENER DIODE	
D503			MA112	DIODE	
D504,505			MA2S111	DIODE	
D506,507			1SS355	DIODE	
D508,509			DA221	DIODE	
IC1			MB15117FV-G6ND	IC(PLL FREQUENCY SYNTHESIZER)	
IC2,3			TC7W66FU	IC	
IC4		*	KOH39	IC(VHF VCO)	
IC5			KOH39	IC(UHF VCO)	
IC6			TA75S01F	IC(OP AMP)	
IC7			BU2090FS	IC(SHIFT/STORE REGISTER)	
IC8			TK10930V	IC	
IC9			TC4W53FU	IC(2 INPUT NAND GATE)	
IC10			TA78L05F	IC(VOLTAGE REGULATOR/+5V)	
IC901			TA78L08F	IC(VOLTAGE REGULATOR/+8V)	
IC502			TA78L05F	IC(VOLTAGE REGULATOR/+5V)	
IC503			PST9190NR	IC(SYSTEM RESET)	
IC504			M62364FP	IC(D/A CONVERTER)	
IC505			LC73881M	IC(DTMF DECODER)	K,M2,M4

PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Adress	New parts	Parts No.	Description	Destination
IC506			AK2343	IC(CTCSS ENCODER/DECODER)	
IC507			BU4066BCF	IC(ANALOG SWITCH X4)	
IC508		*	78D56GC-A70BBT	IC(CPU)	K
IC508		*	78D56GC-A71BBT	IC(CPU)	E,E3
IC508		*	78D56GC-A71BBT	IC(CPU)	M2,M4
IC509			TA75S393F	IC	
IC510			TC74HC4060AF	IC(BUFFER CONVERTER)	
IC511		*	X25330SBI-2.5	IC(EEPROM)	
Q1			DTD143EK	DIGITAL TRANSISTOR	
Q2			2SC4738(GR)	TRANSISTOR	
Q3,4			2SC4619(P,O)	TRANSISTOR	
Q5			2SA1832(GR)	TRANSISTOR	
Q6			2SC4738(GR)	TRANSISTOR	
Q11			FMA5	TRANSISTOR	
Q12			2SC4617(R)	TRANSISTOR	
Q13			2SC5108(Y)	TRANSISTOR	
Q14			2SC5066(O)	TRANSISTOR	
Q15			2SC4083	TRANSISTOR	
Q16			2SC4968	TRANSISTOR	
Q17			2SC3357	TRANSISTOR	
Q18,19			2SC2954	TRANSISTOR	
Q20			2SB1505(E,F)	TRANSISTOR	
Q21			2SC4617(R)	TRANSISTOR	
Q22			DTC144EU	DIGITAL TRANSISTOR	
Q23			2SC4617(R)	TRANSISTOR	
Q24			2SB1132(Q,R)	TRANSISTOR	
Q25			DTC114EE	DIGITAL TRANSISTOR	
Q26			2SA1362(Y)	TRANSISTOR	
Q27,28			2SB1132(Q,R)	TRANSISTOR	
Q29,30			2SA1362(Y)	TRANSISTOR	
Q31,32			FMA5	TRANSISTOR	
Q33			3SK239A	FET	
Q34,35			2SC5066(O)	TRANSISTOR	
Q36			3SK239A	FET	
Q37			3SK241(R)	FET	
Q38			DTC114EE	DIGITAL TRANSISTOR	
Q39			2SC5066(O)	TRANSISTOR	
Q40			3SK239A	FET	
Q42-44			DTC114EE	DIGITAL TRANSISTOR	
Q45,46			SGM2014M	FET	
Q47			2SK879(Y)	FET	
Q48,49			2SC4619(P,O)	TRANSISTOR	
Q50			2SK1824	FET	
Q51			DTC114EE	DIGITAL TRANSISTOR	
Q52			2SC4738(GR)	TRANSISTOR	
Q53			2SB1388(R)	TRANSISTOR	
Q54			2SC4617(R)	TRANSISTOR	
Q55			2SK1824	FET	E,E3
Q55			2SK1824	FET	M2,M4
Q56			2SK1824	FET	
Q60,61			2SK1824	FET	E,E3
Q60,61			2SK1824	FET	M2,M4
Q62			DTC114EE	DIGITAL TRANSISTOR	E,E3
Q62			DTC114EE	DIGITAL TRANSISTOR	M2,M4
Q501			2SC4738(GR)	TRANSISTOR	
Q502			2SA1519	TRANSISTOR	
Q503			2SC4738(GR)	TRANSISTOR	
Q504			DTC114EE	DIGITAL TRANSISTOR	E,E3,M2,M4
Q505,506			2SC4738(GR)	TRANSISTOR	
TH1			157-153-65001	THERMISTOR(15K)	

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A	CIRCULARNUT	:N14-0569-04
B	M2.6x6(OC)BLK	:N33-2606-45
C	M3x8	:N67-3008-46
D	BLK	:N80-2010-45
E	BLK	:N80-2610-45
F		:N83-2005-46
G		:N83-2608-46
H	M2.6x6(Bi-Tap)	:N87-2606-46

24b E.E3only

700 (Chassis)

702 (Shielding cover)
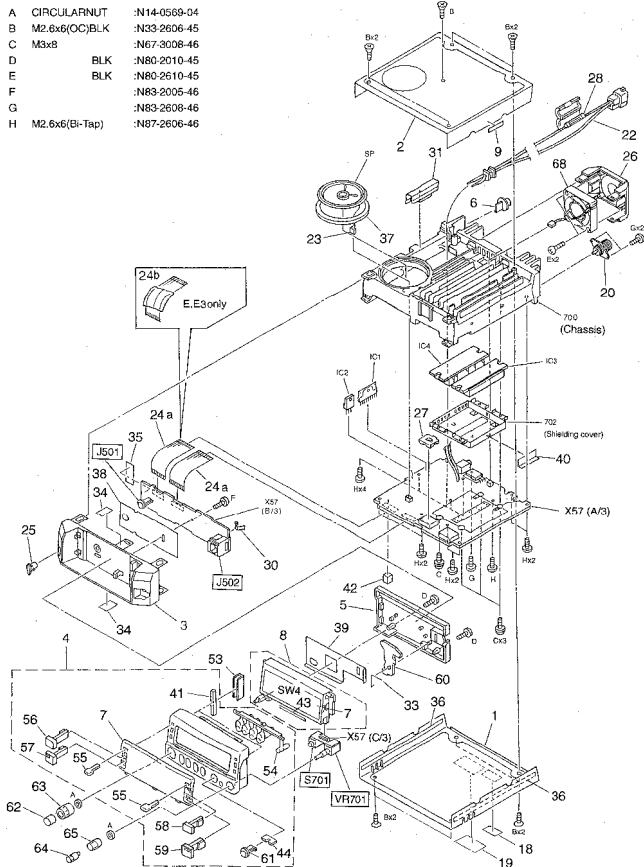
Parts with the exploded numbers larger than 700 are not supplied.

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PACKING

46 Polystyrene Foamed Board
(H11-0887-04)

21 DC Cord
(E30-2111-15)
29 Fuse (20A)
(F51-0018-05)
47 Bag
(H25-0103-04)

28 Fuse (15A)
(F51-0017-05)

29

51 Holder
(J19-1526-04) : K
66 Screw Set
(N99-0331-05) : E, E3, M2, M4
67 (N99-0382-05) : K

52 Bracket
(J29-0632-13)

MIC
(T91-0396-05) : M2, M4, E, E3
(T91-0586-05) : K

49 Bag
(H25-0723-04)

50 Item Carton Case
(H52-1078-02) : K
(H52-1079-02) : M2, M4
(H52-1080-02) : E, E3

45 Polystyrene Foamed Fixture
(H10-6606-01)

Warranty Card
10 (B46-0337-03) : E, E3
10 (B46-0469-10) : K
Instruction Manual
11 (B62-0864-00) : K, M2, E
12 (B62-0865-00) : E
13 (B62-0866-00) : E, E3
14 (B62-0867-00) : K, E3
15 (B62-0868-00) : E3
16 (B62-0869-00) : M4
17 (B62-0870-00) : E3
48 Bag
(H25-0337-04)

UPC Code Label

TM-G707A/E

ADJUSTMENT

Measuring Equipment for Adjustment

1. **Digital voltmeter (D.V.M)**
   Input impedance: High
2. **RF valve voltmeter (RF V.M)**
   Input impedance: 1MΩ or more, 2pF or less
   Voltage range: Full scale = 10mV to 300V
   Measurable frequency range: up to 450MHz
3. **Frequency counter (f.counter)**
   Input sensitivity: About 50mV
   Measurable frequency: 450MHz or more
4. **DC power supply**
   Voltage: Variable in the range 10 to 17V
   Current: 13A or more
5. **Power meter**
   Measurement power: 60W, 30W, 10W
   Impedance: 50Ω
   Measurable frequency: 450MHz
6. **AF valve voltmeter (AF V.M)**
   Input impedance: 1MΩ or more
   Voltage range: Full scale = 1mV to 30V
   Measurable frequency range: 50Hz to 10kHz
7. **AF generator (AG)**
   Output frequency: 100Hz to 10kHz
   Output voltage:0.5mV to 1V
8. **Linear detector**
   Measurable frequency: 450MHz
9. **Spectrum analyzer**
   Measurable frequency: 450MHz
10. **Directional coupler**
11. **Oscilloscope**
    High sensitivity with horizontal input terminal
12. **Standard signal genertor (SSG)**
    The standard signal generator must be able to generate
    the 1GHz band frequencies and vary the amplitude and
    frequency.
    Output: -133dBm to greater than - 13dBm
13. **Dummy load (for AF)**
    8Ω, about 5W
14. **Distortion meter**
15. **Adjustment jig**

Preparation

● **Microphone connector**
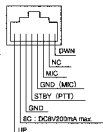
Microphone socket
(as viewed from the front of the set)

● Use an insulated rod, such as a plastic rod, for adjustment
  (especially for trimmers, coils, etc.).
● To protect the signal generator, never connect the
  microphone to the microphone socket when the receiver
  section is adjusted.
● Before the power cord is connected, make sure the power
  switch is off.
● Without specification of SSG, standard modulation is
  applied (MOD : 1kHz, DEV : ±3kHz, AF output : 0.63V/8Ω)
● See the instruction manual for transmit and receive
  operations.
● Use service jigs as necessary.
● It is good to copy critical data with clone operations before
  making adjustments. For details on clone operations, see
  "Reference" on Page 39.

ADJUSTMENT

Adjustment Service Jig
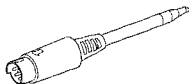
Data terminal short plug (W05-0611-00)

● **Service jigs usage**
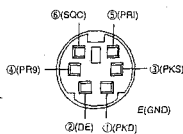
Pin assignment seen from direction B
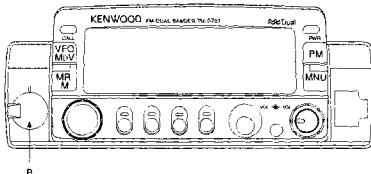
Short plug
Terminals ③ and ⑥ are short circuited.

[Reference] ③ PKS (SEND switch for DATA terminal)
Connect PTT output. If PKS is set to "L",
data are sent and the microphone will be mute.
⑥ SQC (Squelch control output)
This outputs squelch control output.

● **Service jigs specification**
Plug cable with 6P mini-DIN : Model PG-5A (cable parts No. : E30-3202-05) processed like under fig.

(Cut the cable at suitable length.)

DIN pin No.	Color
1	Brown
2	Red
(3)	Orange
4	Yellow
5	Green
(6)	Blue
Bracket	Shield
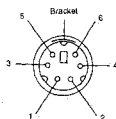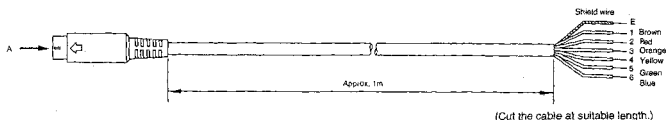
Pin assignment seen from direction A

Join these DIN pins.
Cut unnecessary wires
at the bottom and wind
insulation tape around
top edge.

Orange wire

Short circuit
(Soldering)

Blue wire

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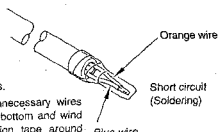
TM-G707A/E

ADJUSTMENT

Parts layout
Front panel
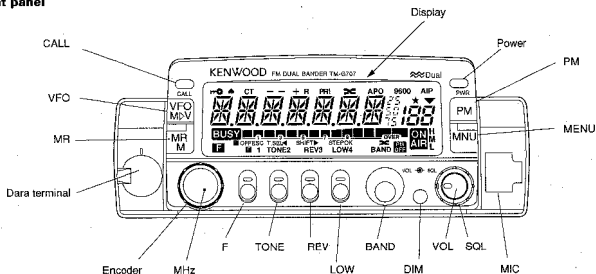
Rear panel
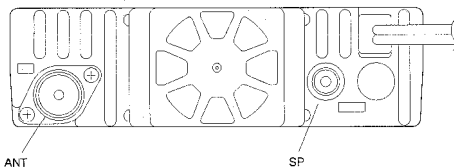
Adjustment parts layout
- TX-RX UNIT
  (Unit under)

- Adjustment parts No.
  TC1: Transmission frequency (UHF)
  L43 : BPF(VHF)
  L48 : BPF(VHF)
  L52 : BPF(VHF)
- Test point
  CVV : VCO lock voltage (VHF)
  CVU : VCO lock voltage (UHF)
  SM : BPF

TM-G707A/E
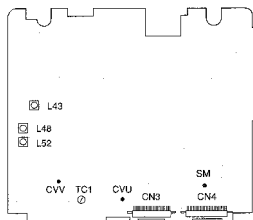
ADJUSTMENT

Adjustment mode

- This is the adjustment mode for making adjustments or setting levels.
- The following items can be adjusted or set.
  - A Squelch release sensitivity (SQL)
  - B S meter light-up start level (S-1.)
  - C S meter all light-up level (S.ALL.)
  - D Transmission output (TX.POW.)
  - E Transmission modulation factor (DEVI.)
  - F VHF BPF (B.P.F.1, B.P.F.2, B.P.F.3, B.P.F.4)

Adjustment mode startup method

1. Switch OFF (PWR) and insert the adjustment plug at the set data terminal.
2. Switch ON (PWR) while pressing the (F) key and the (TONE) key at the same time.
3. When the set goes into adjustment mode, the "T." mark is displayed at the head of the frequency display.
   See the figure below.

   Adjustment mode display

4. In adjustment mode, the desired band and frequency can be selected with **[VFO]**, **[MR]**, **[ENCODER]**, **[MHz]** and **[BAND]**. You can also switch the transmission output with the **[LOW]** key.
5. When you press the **[MNU]** key, the set goes into adjustment enabled mode.
6. Pressing the **[◄]** or **[►]** key switches the adjustment item to the previous item or the next item among the six adjustment items A-F (9 adjustments).

A. Squelch release sensitivity adjustment (values set independently for 144 MHz and 430 MHz)
   ①. When **[SQL]** is displayed with the **[◄]** or **[►]** key, the value currently input for the squelch level is displayed and the squelch level can be adjusted. (See the figure below.)

   ②. In adjustment enabled mode, the **[VFO]** and **[MR]** keys function as the Up and Down keys, increasing/decreasing the frequency for VFO mode or the memory channel for MR mode.
   ③. When you apply the prescribed SSG input from the ANT terminal and press the **[OK]** key, the adjustment value is set and the adjustment mode moves to the next item. If you press the **[ESC]** key, the adjustment value is not set.

B. S meter light-up start level (value set for each band)
   ①. When you display **[S-1]** with the **[◄]** or **[►]** key, the value currently input for the S meter is displayed and the value can be adjusted. (See the figure below.)
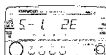
   ②. When you apply the prescribed SSG input from the ANT terminal and press the **[OK]** key, the adjustment value is set.

C. S meter all light-up level (value set for each band)
   ①. When you display "S.ALL." with the **[◄]** or **[►]** key, the value currently input for the S meter is displayed and the value can be adjusted. (See the figure below.)
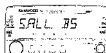
   ②. When you apply the prescribed SSG input from the ANT terminal and press the **[OK]** key, the adjustment value is set and the adjustment mode moves to the next item.

D. Transmission output (values set independently for 144 MHz and 430 MHz)
   ①. After setting the frequency, switch to the desired output range with the **[LOW]** key.
   ②. When you display "TX.POW." with the **[◄]** or **[►]** key, the current setting for the output is displayed blinking. (See the figure below.)

   ③. Connect the power meter to the ANT terminal, then press the mic PTT switch to transmit.
   Turn the **[ENCODER]** knob to adjust the power meter reading to the prescribed output.
   ④. When the prescribed output is reached, switch the PTT switch off and press the **[OK]** key to set the adjustment value.

E. Transmission modulation factor (values set independently for 144 MHz and 430 MHz)
   ①. When you display "DEVI." with the **[◄]** or **[►]** key, the current setting is displayed blinking. (See the figure below.)
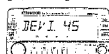
   ②. Connect the direct wave detector and power meter to the ANT terminal, apply the prescribed A.G. input from the MIC input terminal, and transmit.
   Turn the **[ENCODER]** knob to adjust the direct wave detector reading to the prescribed value.
   ③. When the prescribed value is reached, stop trasmission and press the **[OK]** key to set the adjustment value.

F. VHF BPF adjustments (4 points: near 120MHz, 132 MHz, 160 MHz, and 170 MHz)
   ①. When you display any of "B.P.F.1." through "B.P.F.4." with the **[◄]** or **[►]** key, the setting is displayed blinking. (See the figure below.)
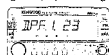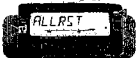
   ②. Connect the signal generator to the ANT terminal and the digital voltmeter to the TX-RX unit (solder side) SM terminal.
   ③. Apply a signal of the prescribed output with the specified frequency from the signal generator.
   Turn the **[ENCODER]** knob and adjust to maximize the voltage at the SM terminal.
   ④. When the maximum value is reached, press the **[OK]** key to set the adjusted value.
   Set "B.P.F.2", "B.P.F.3", and "B.P.F.4" in the same manner.

Note:

- The **[ENCODER]** knob only works in frequency display and for trasmission power, modulation foctor, and BPF adjustments.
- When you press the **[OK]** key, the adjusted value is set and adjustment mode moves to the next item, but if you press the **[ESC]** key, the adjusted value is not set.
- To end adjustment mode, switch off the power.

TM-G707A/E

ADJUSTMENT

Common sction

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) Power voltage:13.8V 2) VOL, SQL knob:MIN							
2. Reset	■ Partial Reset (VFO) Use to initialize all settings except the memory channels, the Call channel, the PM channels, and Memory Channel Lockout. 1 Press [VFO]+ POWER ON. • A confirmation message appears. VFORST • To quit resetting, press any key other than [OK]. 2. Press [OK].	■ Full Reset (Memory) Use to initialize all settings that you have customized. 1 Press [MR]+ POWER ON. • A confirmation message appears. ALLRST • To quit resetting, press any key other than [OK]. 2 Press [OK].			■ Hard Reset You can also use the RESET switch to initialize settings. Push the switch momentarily to do Partial Reset or press it for 1 second or longer to do Full Reset. No confirmation message appears. Use this switch when the microcomputer and/or the memory chip malfunction beceouse of ambient factors. Viewed with the front panel removed RESET switch			
3. Lock voltage check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E	D.V.M	TX-RX (A/3)	CVV (TP6)	Check			about 2.5V
	2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E			CVU (TP7)				about 4.0V
	3) UHF band FREQ.:443.980MHz:K FREQ.:434.980MHz:M,E transmission	Power Meter D.V.M	Rear panel TX-RX (A/3)	ANT CVU (TP7)				about 3.0V
	4) VHF band FREQ.:145.980MHz:K,M FREQ.:144.980MHz:E transmission			CVV (TP6)				about 2.0V
4. BPF Adjust	1) FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:-93dBm				TX-RX (A/3)	L43 L48 L52	Voltage max	2.5V or more
5. BPF Write	Switch to adjustment mode and carry out the operations for Item F. SSG:-93dBm	SSG D.V.M	Rear panel TX-RX (A/3)	ANT SM	Display	Encoder [OK] key	UP/DOWN write	Voltage max

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ADJUSTMENT

Receiver section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. High level input S/N and distortion check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:— 53dBm AF output:2.83V/8 Ω	SSG Oscilloscope AFV.M Distortion meter	Rear panel	ANT EXT.SP			Check	S/N 42dB or more Distortion rate:4% or less
	2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG:— 53dBm AF output:2.83V/8 Ω							
2. Sensitivity check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E FREQ.:144.050MHz FREQ.:147.925MHz:K,M FREQ.:145.925MHz:E SSG:— 122dBm:M,E SSG:— 119dBm:K AF output:0.63V/8 Ω	SSG Distortion meter Oscilloscope AFV.M	Rear panel	ANT EXT.SP			Check	SINAD 12dB or more
	2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E FREQ.:438.050MHz:K FREQ.:430.050MHz:M,E FREQ.:449.975MHz:K FREQ.:439.925MHz:M,E SSG:— 122dBm AF output:0.63V/8 Ω							
3. Squelch write	Switch to adjustment mode and carry out the operations for Item A. 1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:— 130dBm:M,E SSG:— 127dBm:K	SSG	Rear panel	ANT EXP.SP	Display	[OK] key	Write	
	2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG:— 130dBm							
4. Squelch check	1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:OFF Set to the point where noise will be erased by turning the squelch knob.	SSG Oscilloscope	Rear panel	ANT EXP.SP	Display		Check	Knob position: 8:00 ~ 11:00 Busy lights off.
	2) SSG:— 126dBm:M,E SSG:— 125dBm:K							Squelch open. BUSY lights on.
	3) Squelch knob: clockwise MAX							AF output disappear. BUSY lights off.
	4) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E Set to the point where noise will be erased by turning the squelch knob.							Knob position: 8:00 ~ 11:00 Busy lights off.
	5) SSG:— 126dBm							Squelch open. BUSY lights on.
	6) Squelch knob: clockwise MAX							AF output disappear. BUSY lights off.

TM-G707A/E

ADJUSTMENT

Receiver section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
5. S-meter write	Switch to adjustment mode and carry out the operations for ItemB,C. 1) 144MHz band (S-1) FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG.:− 118dBm	SSG	Rear panel	ANT	Display	[DK] key	Write	S-meter one segment (S1) lights on.
	2) 144MHz band (S.ALL) SSG.:− 96dBm							S-meter all segment (ALL) lights on.
	3) 430MHz band (S-1) FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG.:− 118dBm							S-meter one segment (S1) lights on.
	4) 430MHz band (S ALL) SSG.:− 96dBm							S-meter all segment (ALL) lights on.
	5) 118MHz band (S-1) FREQ.:130.050MHz SSG.:− 100dBm							S-meter one segment (S1) lights on.
	6) 118MHz band (S ALL) SSG.:− 85dBm							S-meter all segment (ALL) lights on.
	7) 300MHz band (S-1) FREQ.:370.100MHz SSG.:− 110dBm							S-meter one segment (S1) lights on.
	8) 300MHz band (S.ALL) SSG.:− 90dBm							S-meter all segment (ALL) lights on.
	9) 800MHz band (S-1) FREQ.:865.975MHz:K FREQ.:870.100MHz:M,E SSG.:− 105dBm							S-meter one segment (S1) lights on.
	10) 800MHz band (S ALL) SSG.:− 85dBm							S-meter all segment (ALL) lights on.
6. S-meter check	1) FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG.:− 114 ~ − 124dBm	SSG	Rear panel	ANT	Display	S-meter	Check	S-meter one segment (S1) lights on.
	2) FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E SSG.:− 90 ~ − 102dBm							S-meter all segment (ALL) lights on.

ADJUSTMENT

Transmission section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Transmission frequency Adjust	1) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E	f.counter Dummy	Rear panel	ANT	TX-RX (A/3)	TC1	444.000MHz:K 435.000MHz:M,E	Not warm up the set. ± 500Hz
2-1. POWER VHF band write or check	For 1), 2) and 4), switch to adjustment mode and carry out the operations for item D. 1) POWER:LOW FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E Transmission.	Power meter Ammeter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W ± 0.5W
	2) POWER:MID Transmission.							12W ± 1.0W
	3) POWER:MAX Transmission.						Check	48W or more
	4) POWER:HI Transmission.				Display	Encode [OK] key	UP/DOWN write	M4:22.5W ± 1.0W K,E,M2:MAX Power 52W or more. 50.0W ± 1.0W MAX Power 48W or more. (MAX Power — 2W) ± 1.0W
	5) FREQ.:144.000MHz FREQ.:147.975MHz (K,M) FREQ.:145.975MHz (E) POWER:HI Transmission.						Check	K,E,M2:44 ~ 60W M4:20 ~ 25W
	6) POWER:MID Transmission.							10 ~ 14W
	7) POWER:LOW Transmission.							3 ~ 10W
2-2. POWER UHF band write or check	For 1), 2) and 4), switch to adjustment mode and carry out the operations for item D. 1) POWER:LOW FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E Transmission.	Power meter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W ± 0.5W
	2) POWER:MID FREQ.:438.000MHz:K FREQ.:430.000MHz:M,E Transmission.							12.0W ± 1.0W
	3) POWER:MAX FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E Transmission.						Check	33W or more
	4) POWER:HI FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E Transmission.				Display	Encode [OK] key	UP/DOWN write	M4:22.5W ± 1.0W K,E,M2:MAX Power 37W or more. 35.0W ± 1.0W MAX Power 33W or more. (MAX Power — 2W) ± 1.0W
	5) FREQ.:438.000MHz:K FREQ.:430.000MHz:M,E FREQ.:449.975MHz:K FREQ.:439.975MHz:M,E POWER:HI Transmission.						Check	K,E,M2:28 ~ 42W M4:20 ~ 25W
	6) POWER:MID Transmission.							10 ~ 14W
	7) POWER:LOW Transmission.							3 ~ 10W

TM-G707A/E

ADJUSTMENT

Transmission section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
3. DEV write or check	For 1) and 3), switch to adjustment mode and carry out the operations for Item E. 1) VHF band FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E AG:1kHz25mV:E AG:1kHz50mV:K,M Transmission	Power meter Linear detector Oscilloscope	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN Write	± 4.2kHz ± 0.2kHz
	2) Down AG output from the above state by 20dB (1kHz/2.5mV):E 20dB (1kHz/5.0mV):K,M Transmission	AG AF V.M		MIC			Check	± 2.3 ~ 4.2kHz:E ± 2.4 ~ 4.1kHz:K,M
	3) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E AG:1kHz25mV:E AG:1kHz50mV:K,M Transmission				Display	Encode [OK] key	UP/DOWN write	± 4.2kHz ± 0.2kHz
	4) Down AG output from the above state by 20dB (1kHz/2.5mV):E 20dB (1kHz/5.0mV):K,M Transmission						Check	± 2.3 ~ 4.2kHz:E ± 2.4 ~ 4.1kHz:K,M
4. TONE DEV check	1) VHF band FREQ.:145.100MHz TONE:88.5Hz Transmission	Power meter Linear detector Oscilloscope	Rear panel	ANT			Check	± 0.5 ~ 1.3kHz
	2) UHF band FREQ.:445.100MHz:K FREQ.:435.100MHz:M,E TONE:88.5Hz Transmission							
5. Protection check	1) VHF band FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E Power:HI ANT:short circuit and open Transmission	Ammeter					Check	12.0A or less
	2) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E Power:Hi ANT:short circuit and open Transmission							12.0A or less

TM-G707A/E

ADJUSTMENT

[Reference]
Clone operation method
● Connection diagram

Ⓐ TM-G707A/E (Copy source)

Ⓑ TM-G707A/E (Copy destination)

Approx 1m

Clone cable (E30-3326-05)

PKD (NC)		PKD (NC)
DE		DE
PKS/RxD		PKS/RxD
PR9		PR9
PR1		PR1
SQC/TxD		SQC/TxD
E (GND)		E (GND)

NC: No connection

Clone cable connections
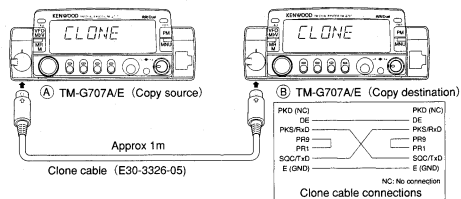
● Operations

①. Connect the data terminals on the copy source set and the copy destination set with the clone cable.

②. Start the clone function on the copy destination set by switching on its power while holding down the **[F]** and **[REV]** keys. "CLONE" appears is displayed.

③. Start the clone function on the copy source set by switching on its power while holding down the **[F]** and **[REV]** keys. "CLONE" appears is displayed.

④. Press the **[CALL]** key on the copy source set to start data transfer. "SEND" is displayed.

⑤. When clone processing ends, **[END]** is displayed on the copy source set.

⑥. If clone processing fails, **[ERROR]** is displayed on the copy source set.

⑦. Switching the power OFF, then ON again returns the sets to normal operation.

Note:
● All the data in the copy destination set is overwritten.
● If clone operation are stopped midway, the data in the copy destination set may be lost.
● The two TM-G707 transceivers must be the same market versions to use the Clone function.

PC BOARD VIEWS TM-G707A/E

LCD ASSY (B38-0797-35)
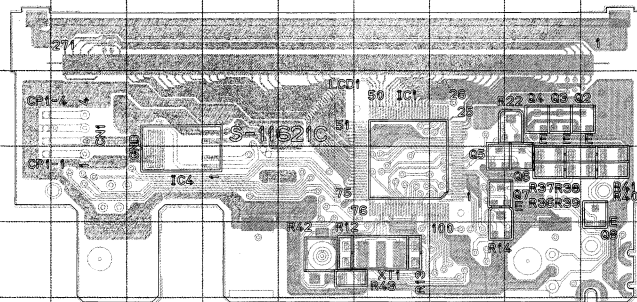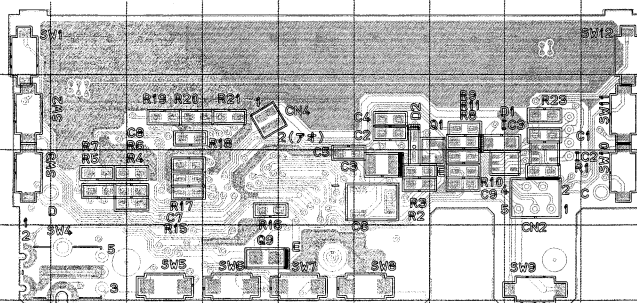
TM-G707A/E PC BOARD VIEW

TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Conponent side view)

TX-RX UNIT (A/3)
(Component side)

Ref. NO.	Address
IC1	9F
IC4	12F
IC5	10G
IC7	3I
IC9	6H
IC10	3G
Q1	8N
Q3	10G
Q5	8F
Q6	8F
Q11	11G
Q12	11F
Q20	7O
Q23	4G
Q24	4G
Q50	6H
Q51	3K
Q53	3J
D2	10G
D3	9G
D4	9G
D5	11F
D24	4H
D34	12F
D35	11F

J72-0548-11
X57-557X-XX(A/3)

Pattern 1	Component side
Pattern 2	
Pattern 3	
Pattern 4	Foil side

MB511PFV-GBND

BU2090FS

TA78L05F

FMA5

2SB1132(Q,R)

2SK1824

2SB1565(E,F)

DTC114EE
DTD143EK
2SC4738(GR)
2SA1832(GR)
2SC4619(P,Q)
2SC4617(R)
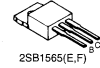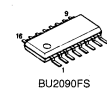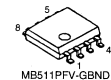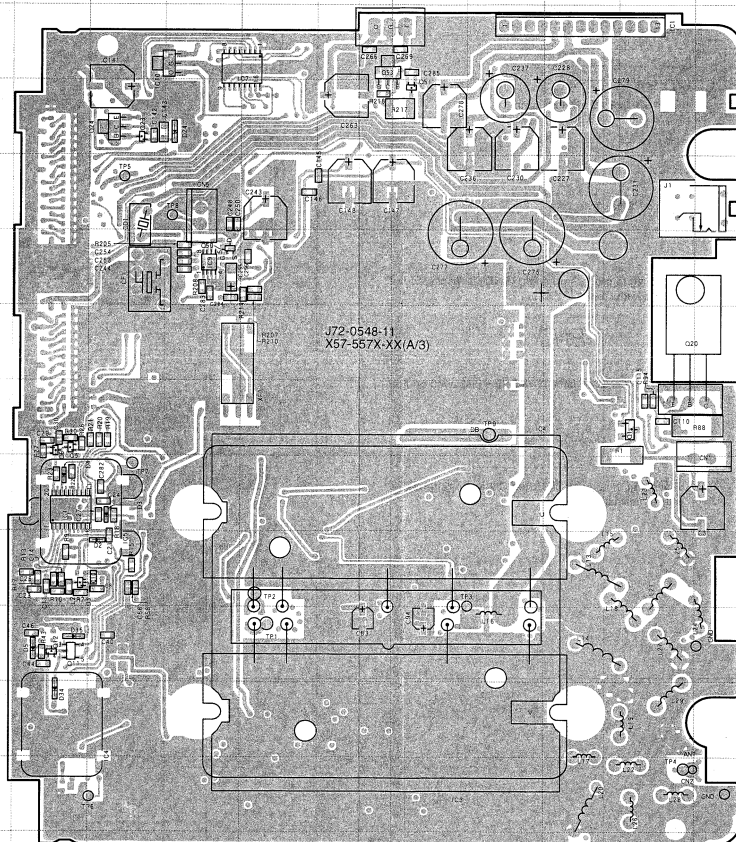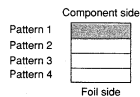
TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Foil side view)

TX-RX UNIT (A/3)
(Foil side)

Ref. NO.	Address
IC2	9N
IC3	9N
IC6	8G
IC8	6M
Q2	10N
Q4	13O
Q13	12N
Q14	10N
Q15	10M
Q16	12M
Q17	10L
Q18	11M
Q19	10L
Q21	8G
Q22	9F
Q25	4N
Q26	4M
Q27	4K
Q28	4K
Q29	4L
Q30	4L
Q31	4L
Q32	4L
Q33	9H
Q34	9H
Q35	9J
Q36	12J
Q37	9I
Q38	8I
Q39	10I
Q40	9J
Q42	10J
Q43	12L
Q44	9K
Q45	13L
Q46	10K
Q47	6L
Q48	6L
Q49	8M
Q52	5L
Q54	13J
Q55	4H
Q56	4H
Q60	4G
Q61	4H
Q62	4G
D1	12O
D6	13M
D7	13M
D8	10M
D9	10M
D10	12N
D11	11M
D12	9L
D13	10H

Ref. NO.	Address
D14	10H
D15	11H
D16	11H
D17	13H
D18	9G
D19	10G
D20	13H
D21	10G
D22	8G
D23	13G
D25	3N
D27	10I
D28	12J
D29	12K
D30	10J
D31	12K
D33	10I
D37	9L
D38	9L
D39	5K
D40	6I
D41	7H
D42	13H

J72-0548-11
X57-557X-XX(A/3)

部品面
パターン1
パターン2
パターン3
パターン4
ハンダ面
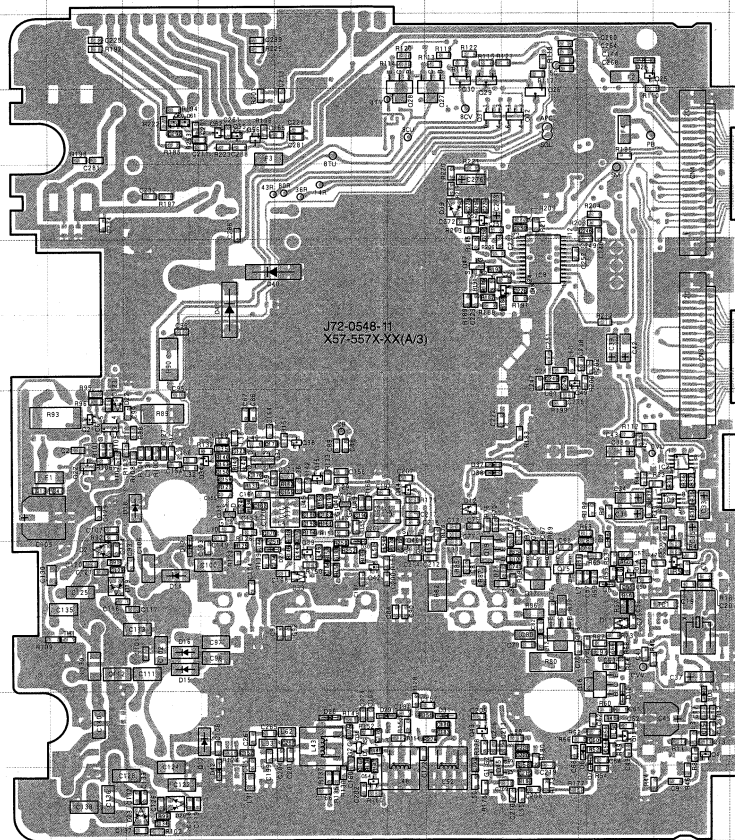
TK10930V

DA221

2SC4093

FMA5

2SB1132(Q,R)
2SC2954
2SC3357

2SK879(Y)
3SK241(R)

SGM2014M

DTC114EE
DTD144EU
2SA1362(Y)
2SC4619(P,Q)
2SC4738(GR)
2SC4617(R)

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TM-G707A/E PC BOARD VIEW

TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view) + (Foil side view)

TX-RX UNIT (A/3)
(Component side) + (Foil side)

Ref. NO.	Address
IC1	9G
IC2	9G
IC3	9G
IC4	12F
IC5	9G
IC6	8N
IC7	3I
IC8	6H
IC9	6H
IC10	3G
Q1	8N
Q2	10G
Q3	10G
Q4	13F
Q5	8F
Q6	8F
Q11	11G
Q12	11F
Q13	12G
Q14	10G
Q15	10H
Q16	12H
Q17	10I
Q18	11H
Q19	10I
Q20	7O
Q21	8N
Q22	9O
Q23	4G
Q24	4G
Q25	4G
Q26	4H
Q27	4J
Q28	4K
Q29	4I
Q30	4I
Q31	4I
Q32	4I
Q33	9M
Q34	9M
Q35	9K
Q36	12K
Q37	9L
Q38	8L
Q39	10L
Q40	9K
Q42	10K
Q43	12I
Q44	9J
Q45	13I
Q46	10J
Q47	6I
Q48	6I

Ref. NO.	Address
Q49	8H
Q50	6H
Q51	3K
Q52	5I
Q53	3J
Q54	13K
Q55	4L
Q56	4L
Q60	4M
Q61	4L
Q62	4M
D1	12F
D2	10G
D3	9G
D4	9G
D5	11F
D6	13H
D7	13H
D8	10H
D9	10H
D10	12G
D11	11H
D12	9I
D13	10M
D14	10M
D15	11M
D16	11M
D17	13M
D18	9N
D19	10N
D20	13M
D21	10N
D22	8N
D23	13N
D24	4H
D25	3G
D27	10L
D28	12K
D29	12J
D30	10K
D31	12J
D33	10L
D34	12F
D35	11F
D37	9I
D38	9I
D39	5J
D40	6L
D41	7M
D42	13M

J72-0545-11
X57-557X-XX(A/3)

MB511PFV-GBND

DTC114EE
DTC144EU
DTD143EK
2SA1362(Y)
2SA1832(GR)
2SC4619(P,Q)
2SC4738(GR)
2SC4617(R)

BU2090FS

TK10930V

TA78L05F

DA221

FMA5

2SC4093

2SB1132(Q,R)
2SC2954
2SC3357

2SK879(Y)
3SK241(R)

2SK1824

SGM2014M

2SB1565(E,F)

	Component side
Pattern 1	
Pattern 2	
Pattern 3	
Pattern 4	
	Foil side

● Connect 1 and 4.

TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view)

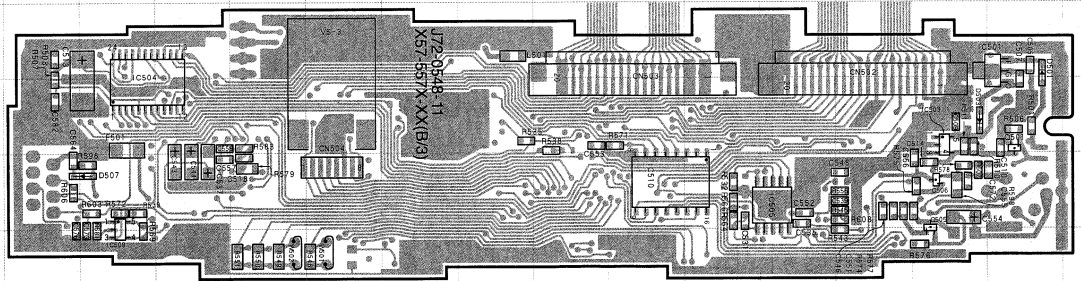TX-RX UNIT (B/3)
(Component side view)

Ref. NO.	Address
IC502	5O
IC506	4F
IC507	3M
IC508	4J
IC511	4L
Q502	5O
Q503	5M
Q504	4F
D502	4P
D504	5M
D505	4O
D506	4O
D508	4O
D509	4O

Component side
Pattern 1
Pattern 2
Pattern 3
Pattern 4
Foil side

DA221 BU4066BCF AK2343 TA78L05F

2SA1519
2SC4738(GR)
DTC114EE
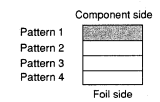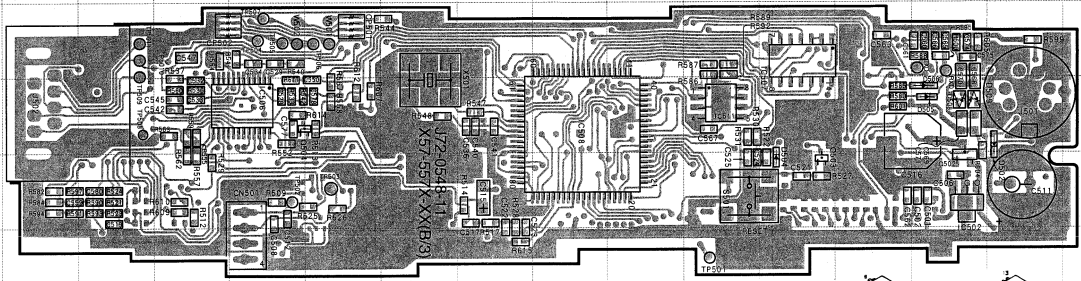
TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Foil side)

TX-RX UNIT (B/3)
(Foil side)

Ref. NO.	Address
IC501	8P
IC503	9O
IC504	9D
Q506	10O
IC509	11D
IC510	10K
Q501	9P
Q505	11O
D501	9P
D503	9O
D507	10D

Component side
Pattern 1
Pattern 2
Pattern 3
Pattern 4
Foil side

PST9130NR
TA75S393F

TC74HC4050AF 2SC4738(GR) TA78L06F

47

48
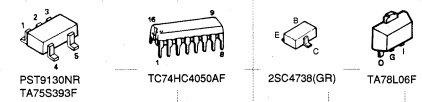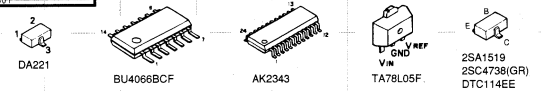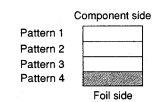
TM-G707A/E PC BOARD VIEW

TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view) + (Foil side view)

Ref. NO.	Address
IC501	5P
IC502	5O
IC503	4O
IC504	5D
IC506	4F
IC507	3M
IC508	4J
IC509	3D
IC510	4K
IC511	4L
Q501	4P
Q502	5O
Q503	5M
Q504	4F
Q505	3O
Q506	10O
D501	5P
D502	4P
D503	5O
D504	5M
D505	4O
D506	4O
D507	4D
D508	4O
D509	4O

Pattern 1
Pattern 2
Pattern 3
Pattern 4

Component

Foil side

● Connect 1 and 4

DA221
BU4066BCF
AK2343
TA78L05F
GND
VIN
V REF
2SA1519
2SC4738(GR)
DTC114EE
PST9130NR
TA75S393F
TC74HC4050AF
TA78L06F

TX-RX UNIT (C/3) (Component side view)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3

J72-0548-11
X57-557X-XX(C/3)
VR701
S701
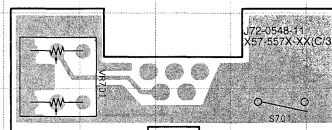
Pattern 1
Pattern 2
Pattern 3
Pattern 4

Component side

Foil side

TX-RX UNIT (C/3) (Foil side)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3

J72-0548-11
X57-557X-XX(C/3)
CN701
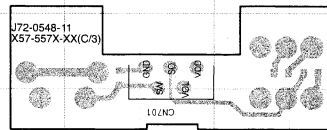
Pattern 1
Pattern 2
Pattern 3
Pattern 4

Component side

Foil side

TX-RX UNIT (C/3) (Component side view) + (Foil side view)
(X57-557X-XX)0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3

J72-0548-11
X57-557X-XX(C/3)
VR701
CN701
S701

Pattern 1
Pattern 2
Pattern 3
Pattern 4

Component side

Foil side

49

50
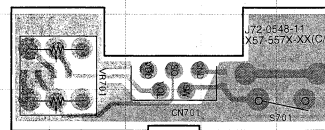
TM-G707A/E   TM-G707A/E

BLOCK DIAGRAM
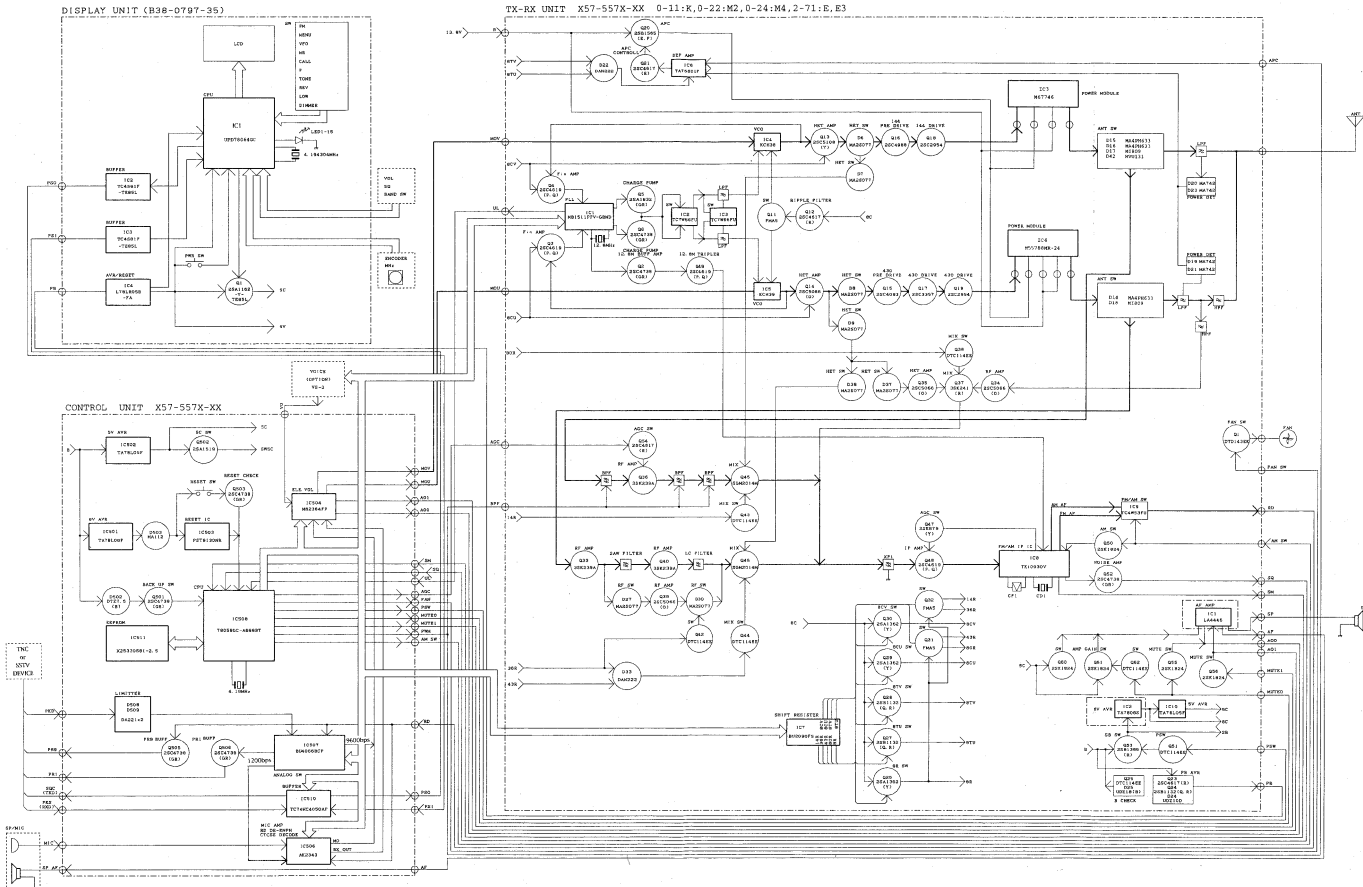
TM-G707A/E   TM-G707A/E

WIRING DIAGRAM
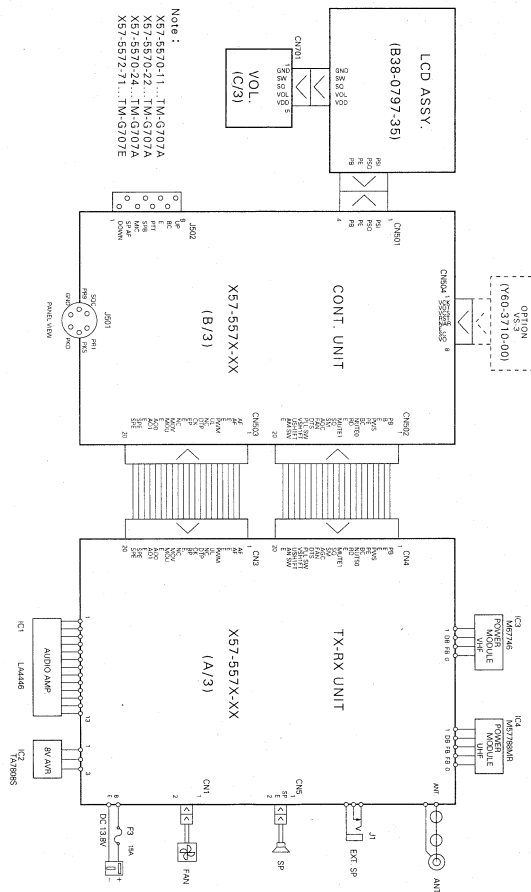
Note :
X57-5570-11...TM-G707A
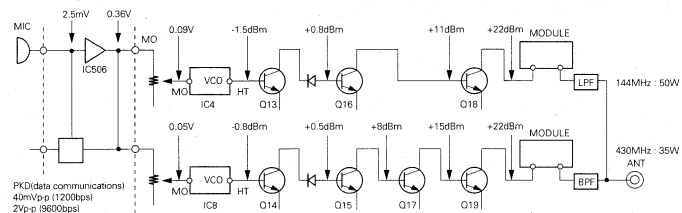X57-5570-22...TM-G707A
X57-5570-24...TM-G707A
X57-5572-71...TM-G707E

LEVEL DIAGRAM

Transmitter Section

Note 1: Set the AG so that the microphone socket input is 3kHz deviation at 1kHz modulation.
The data communication connector input level is 3kHz deviation at 1kHz modulation for 1200bps and 2kHz deviation at 1kHz modulation for 9600bps.

Note 2: The transmit frequency is 145.0 or 435.0MHz.
Note 3: The HI/MID/LOW switch is set to HI.
Note 4: The measurements with the power meter, except for the ANT connector, are the values with the APC off.

Receiver Section
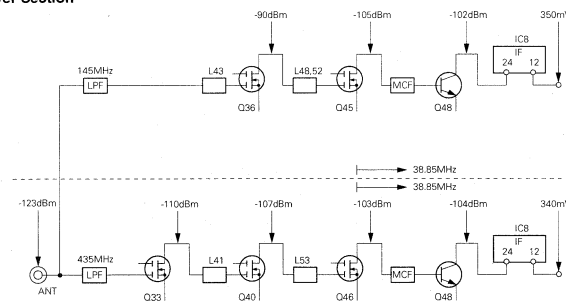
Note 1: The 12dB SINAD levels were plotted using a standard signal generator through a 0.01μF ceramic capacitor at each point from the RF to the first IF.

Note 2: The AF levels were measured with an AF voltmeter when the -73dBm (50μV) standard signal generator signal modulated by a 1kHz modulation frequency and a 3kHz deviation was received and the AF output was adjusted to 0.63V/8Ω by the AF VR.
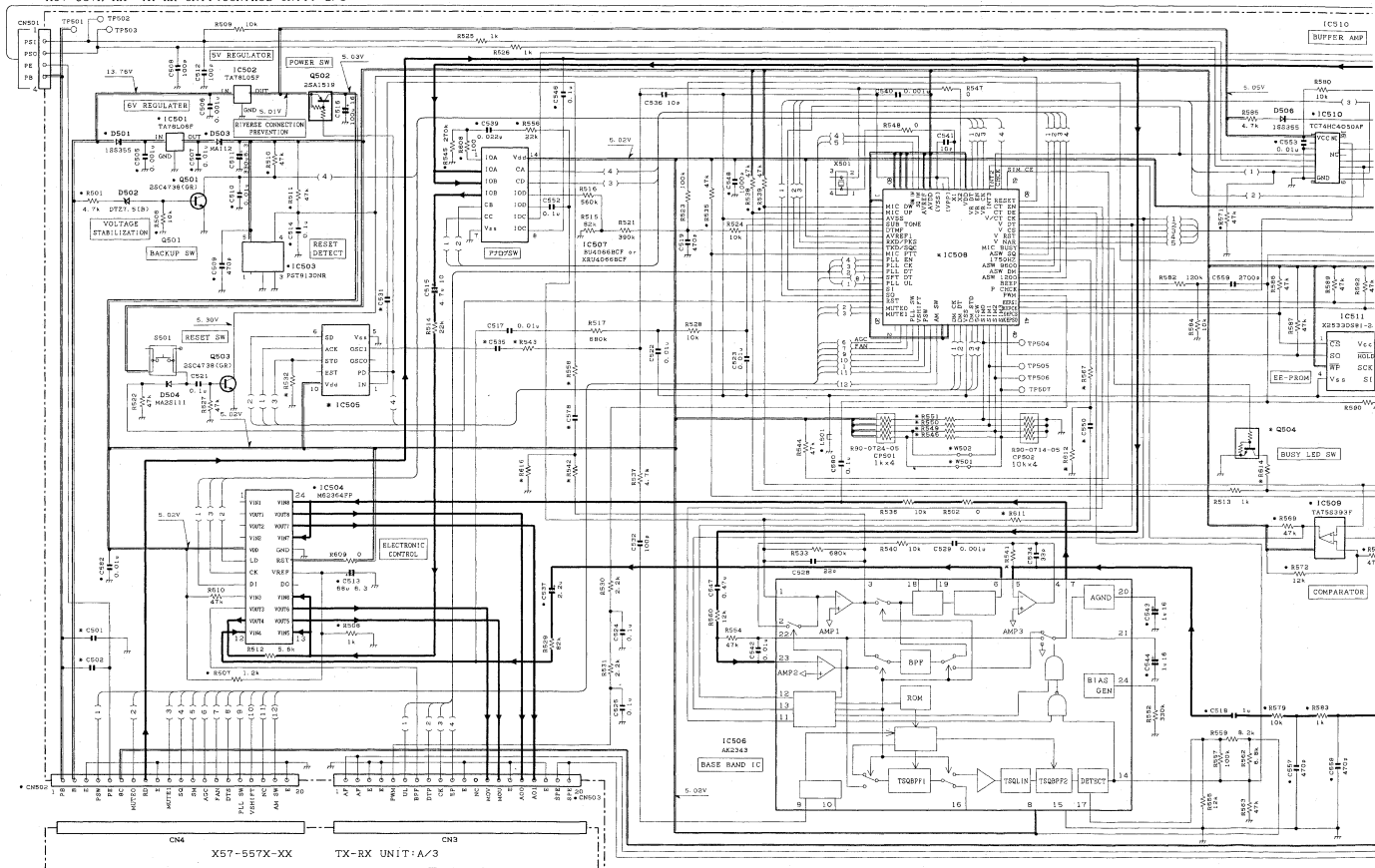
X57-557X-XX TX-RX UNIT:A/3

TM-G707A/E SCHEMATIC DIAGRAM

X57-557X-XX TX-RX UNIT(CONTROL UNIT):B/3
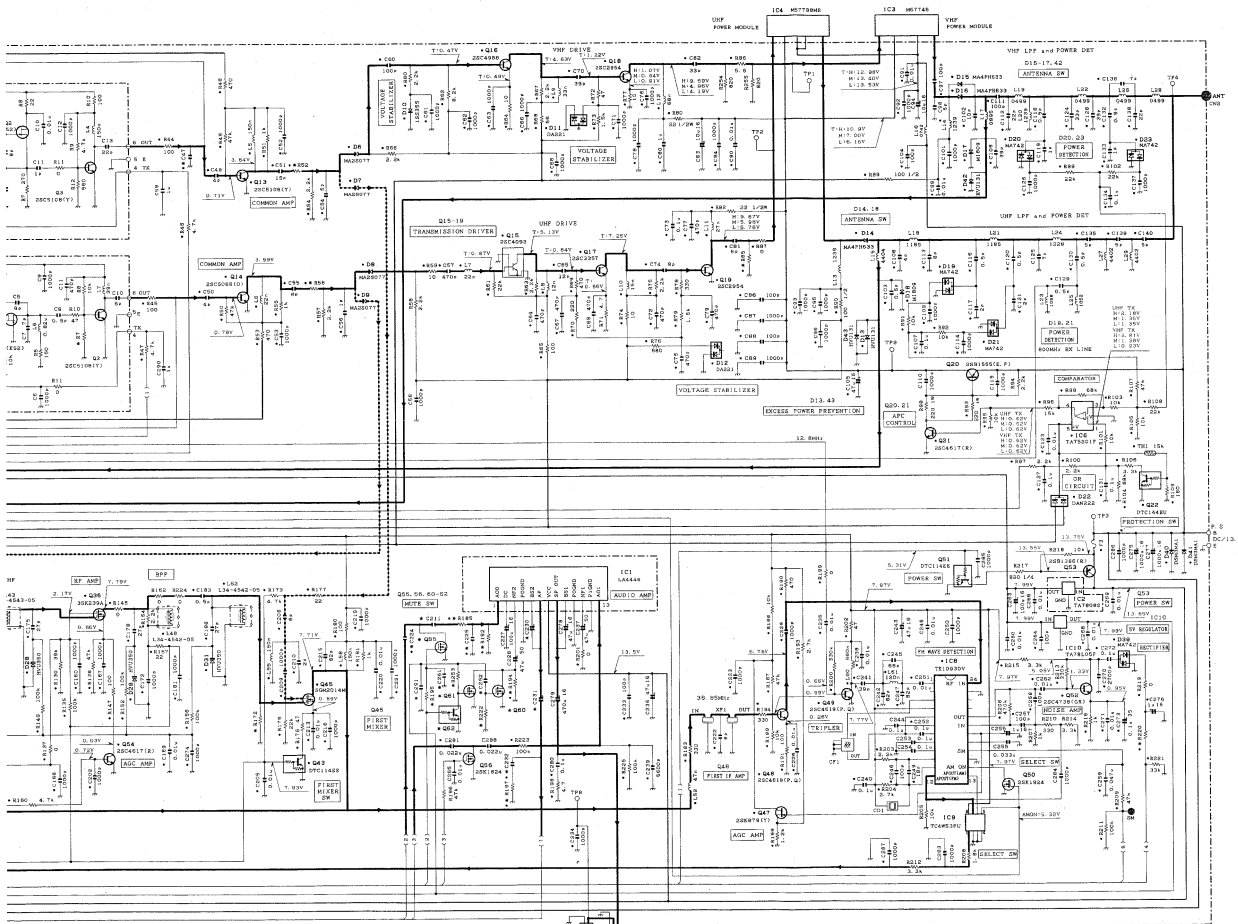
Note) ● Ref. No. : Parts of pattern 1.

B38-0797-35

X57- C/3

	C501	C502	C531	C535	C550	C574	W501	W502	C505	C508	R532	R541	R542	R543	R546	R549	R551	R558	R567	R611	R612	R614	R616	Q504
O-11	K	NO	NO	0.01	0.01	NO	1000	0.01	NO	LC7881M	7805BGC-AT08BT	47k	180k	100k	10k	NO	0	NO	NO	47k	NO	NO	470	DTC114EE
O-22	M2	NO	NO	0.01	0.01	NO	1000	0.01	NO	LC7881M	7805BGC-AT18BT	47k	180k	100k	10k	NO	0	NO	NO	47k	NO	NO	470	DTC114EE
O-24	M4	NO	NO	0.01	0.01	NO	1000	0.01	NO	LC7881M	7805BGC-AT18BT	47k	180k	100k	10k	NO	0	NO	NO	47k	NO	NO	470	DTC114EE
2-71	E E3	0.1	0.1	0.1	NO	0.01	0.01	NO	NO	NO	7805BGC-AT18BT	47k	390k	NO	10k	NO	0	NO	270k	1k	100k	470	DTC114EE

D501.506.507 :1SS355   IC501 :TA78L06F   IC506 :AK2343   IC510 :7CT4HC4050AF
D502 :DTZ7.5(B)   IC502 :TA78L05F   IC507 :BU4066BCF or XRU4066BCF   IC511 :X25330SBI-2.5
D503 :MA112   IC503 :PST9130NR   IC508 :7805BGC-AT08BT(K)   Q501.503.505.506 :2SC4738(GR)
D504.505 :MA2S111   IC504 :K62364FP   IC508 :7805BGC-AT18BT(M2,M4,E,E3)   Q502 :2SA1519
D508.509 :DA221   IC505 :LC7881M   IC509 :TA75S393F   Q504 :DTC114EE

TM-G707A/E

SPECIFICATIONS

Specifications are subject to change without notice due to advancements in technology.

General		VHF Band	UHF Band
Frequency range	U.S.A/Canada	144~148MHz	438~450MHz
	General	144~148MHz [1]	430~440MHz
	Europe	144~146MHz	430~440MHz
Mode		F3E(FM)	
Antenna impedance		50Ω	
Usable temperature range		– 20° C~+60° C(– 4° F~+140° F)	
Power supply		13.8V DC±15% (11.7~15.8V)	
Grounding method		Negative ground	
Current	Transmit (max.)	11.0A or less	10.0A or less
	Receive (at 2W output)	1.0A or less	
Frequency stability (– 10° C~+50° C)		Within±3ppm	
Dimensions (WxHxD projections included)		140x54.5x205.5mm/5.51"x1.57"x7.44"	
Weight		1.2kg/2.6lb	
Transmitter			
Power output	High	50W [2]	35W [2]
	Medium	Approx. 10W	
	Low	Approx. 5W	
Modulation		Reactance	
Spurious emissions		– 60dB or less	
Maximum frequency deviation		±5kHz	
Audio distortion (at 60% modulation)		3% or less	
Microphone impedance		600Ω	
Receiver			
Circuitry		Double conversion	
Intermediate frequency (1st/2nd)		38.85MHz/450kHz	
Sensitivity (12dB SINAD)		0.16μV or less:M,E 0.22μV or less:K	0.16μV or less
Selectivity (– 6dB)		12kHz or more	
Selectivity (– 60dB)		28kHz or less	
Squelch sensitivity		0.1μV or less:M,E 0.11μV or less:K	0.1μV or less
Audio output (8 ohms,5% distortion)		2W or higher	
Audio output impedance		8Ω	

[1] Taiwan : 144 ~ 146MHz
[2] Taiwan : 25W (both bands)